

ESSAYS ON STRATEGY

IX

Strategic Culture

Chaos, Criticality, and Strategic Thought

Information War

Blueprint for Victory

The Weinberger Doctrine and the Liberation of Kuwait

Is the Maritime Strategy Dead ?

The Future of Defense Industry

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FOREWORD

The articles in this edition of *Essays on Strategy* run the gamut from imaginative "think pieces" to practical assessments of current issues.

The opening essay examines how certain contradictions in American culture affect national strategy. This is followed by an exposition of "chaos theory"—a new approach to critical analysis which, the author argues, has revolutionary implications for strategic thought. The next two essays address key issues facing strategists today: a study of "information war" in the context of classical strategic theory and proposal for a new leadership strategy for coalition warfare. The fifth study applies the "Weinberger Doctrine" to the operation to liberate Kuwait. The final two essays examine, respectively, the applicability of the Navy's "maritime strategy" and the future of the defense industry after the Cold War.

These thoughtful essays, by students at the senior military colleges, exemplify the kind of creative, yet pragmatic thinking so necessary to addressing the security challenges now facing the nation.



PAUL G. CERJAN
Lieutenant General, US Army
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ESSAYS ON STRATEGY

1

STRATEGIC CULTURE THE AMERICAN MIND

ANITA M. ARMS

AMONG OBSERVERS OF POLITICAL AND STRATEGIC CULTURE, Colin S. Gray perhaps best captures the essence of the American style in strategy when he writes: "American strategic culture and national style in strategy, the product of the significantly unique American historical experience . . . encompasses oscillations between extremes, and both extremes are quintessential American."¹

A review of this country's historical experience does indeed reveal the existence of certain dichotomies in American strategic culture, mainly as effects of the interplay of the influences that shaped the nation's psyche, traditions, habits, and values. That some of these values have proven to be contradictory in strategic applications suggests the power of this new combination of diverse influences and points to a complex social culture able to deal with inconsistency.

LtCol Anita M. Arms, USAF, was the winner in the Chairman, JCS, Strategy Essay Competition. She wrote the essay while a student at the Industrial College of the Armed Forces.

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MAJOR INFLUENCES FORMING AMERICAN VALUES

What major influences helped form the foundation for the values that constitute the American strategic culture? Six such influences have been particularly noteworthy: the fortuitous geography, political ideology, educational fervor, capitalist values, Protestant ethics, and technological prowess with which the United States was endowed. These provided the developing nation with its basis for social, political, and moral positions and decisions. Those factors were not only major influences during the development of the United States, but they also led to the synthesis of the core of basic American cultural beliefs and values which continue to shape the nation's domestic and international outlook and mold its exercise of political and military power.

The Geography of Isolationism

The North American continent provided a myriad of elements of national power to the English colonists when they arrived: abundant natural resources, a hospitable enough climate, room for almost infinite expansion, and an important advantage usually reserved for island nations—a strategically protected location. Geography afforded the fledgling nation an opportunity to develop its own identity, safe from invasion or interference, protected by the Atlantic and Pacific Oceans.

Geography also protected the nation from the need to guard its borders, permitting Americans to develop a defensive view of the role of the military and the belief that the need to fight a war was a decision to be made, not an inevitability to be faced. Experience bore this out. No major conflict has been fought on American soil since the Civil War; neither of the two most cataclysmic conflicts of the 20th century even touched the American mainland. "In short, American history teaches that war is episodic, waged abroad . . . and that there is not a constant, high level of

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menace in the external world."² Geographical location, more than any other single factor, left America free to develop this mindset, untouched by the threats of bellicose neighbors. It infused the nation with a feeling of security and an attitude of invincibility. It allowed Americans the luxury of safely espousing isolationism.

The Ideology of Individualism

In this context of physical safety, the founding fathers set out to build a new national identity, one separate and distinct from that of England. They based this new identity on liberal democratic and capitalistic principles: the protection of individual liberties, the right to self-government and due process, the indissoluble link between private property and individual freedom, and limits on sovereignty. Virtue, simplicity, and self-reliance formed the cornerstones of this new ideology. The Protestant ethic provided its moral foundations.³

The founding fathers generally believed that America represented a new beginning. Thomas Paine underscored this belief when he wrote *Common Sense*: "We have it in our power to begin the world over again. A situation similar to the present hath not happened since the days of Noah."⁴ Because the founders did not want to duplicate a government and society they had so recently rejected, and because Americans did not share a common ethnic heritage, they created a new ideology, which they used to replace the role national and, particularly, ethnic traditions had filled in the past.

This ideology tied men of varied backgrounds and heritages together, with beliefs in democratic and capitalistic principles. The value the founders placed on the individual helped meld human diversity into a single new identity.

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According to Philip Gleason:

To be or to become an American, a person did not have to be of any particular national, linguistic, religious, or ethnic background. All he had to do was to commit himself to the political ideology centered on the abstract ideals of liberty, equality, and republicanism. Thus the universalist ideological character of American nationality meant that it was open to anyone who willed to become an American.⁵

It also meant that to become an American was to become culturally anonymous.⁶ To fill the vacuum left by the lack of ethnic cohesiveness, the new Americans invented a new identity, replete with new symbols, holidays, and ceremonies—the flag, the Pledge of Allegiance, the Fourth of July, the Constitution. But these are all voluntary ceremonies and purely political symbols.⁷ They do not carry with them the richness and depth of ancient ethnic concepts inherent in other cultures. The definition of American, therefore, began as, and remained, a political one, not tied to place of birth, native tongue, tradition, or ethnicity. It seems quite natural that this narrow definition of “American,” tied only to political symbols, would become synonymous with patriotism.

Education as Equalizer

Education played an important role in purveying this political ideology to immigrants and the native-born alike. Public schools worked hard to instill a belief in national unity, not diversity, focusing on the differences between Americans and outsiders and ignoring the differences among Americans. “Textbooks proclaimed that Americans, unlike ever-warring Europeans, stood together on moral, political and economic issues.”⁸ The American educational system served not only to affirm the concept that good Americans unquestioningly support American institutions—government, school, church, and family—but also to strengthen the link between American identity and patriotism.⁹ While

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the system also taught the concept that all men are created equal, with certain inalienable rights, it ignored the paradox created by a narrow, solely political definition of "American" in a country dedicated to the value and, presumably the appreciation of, the diversity and expression of individual thought.

The American educational process, coupled with the geographic isolation of the United States, resulted in the development of a chauvinistic, ethnocentric view of the world. Archie Roosevelt, in memoirs spanning his career as an American intelligence officer in the Middle East, summarizes the extremely ethnocentric viewpoint of most Americans: "Most of us believe that we have a superior social and governmental system, the best in the world; the lucky ones from outside have joined us here, leaving behind their rigid old societies. We know little about these societies and understand them less. We devote minimum attention to them" ¹⁰

Ironically, the nation with the richest diversity in ethnic, national, and linguistic heritages is also among the most ethnocentric in the world.

Religion: The Rhetoric of Moralism

Religion, particularly Protestantism, played a major role in forming the American consciousness. The United States was founded by Puritans who came to practice their own particular version of religion—not, necessarily, to ensure religious freedom for sects other than their own.¹¹ The Puritan objectives included a desire to erase all vestiges of Roman Catholicism from the Church of England. They stood for the importance of the individual, and they particularly valued direct personal religious experience. This theological emphasis on the individual was echoed in secular, political ideology and became an important part of the basis of the new American society. "Every European sect that found itself constricted or in trouble emigrated to the New World,"¹² contributing to the pluralism of denomina-

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tions, complementing the diversity of cultures and ethnic backgrounds already in residence, and forming the foundation on which the American concept of religious freedom was based. As Madison put it at the Virginia Convention of 1788: "The multiplicity of sects which pervades America . . . is the best and only security for religious liberty in any society."¹³

The Calvinist influence in America remained strong well through the 19th century, and its emphasis on ascetic living helped balance the greed of unbridled capitalism. Irving Kristol believes that Protestant values have provided the moral balance needed to restrain the strong self interests of capitalism.¹⁴ Max Weber, writing in *The Protestant Ethic* and *The Spirit of Capitalism*, went even further than Kristol in his analysis of the relationship between the two. In his view, capitalism "probably could not get along without the support of a powerful ally along the way." That ally is the work ethic prominent in the ascetic sects of Protestantism.¹⁵

Alexis de Tocqueville was struck by the positive influence of religion on both the American state and individual in the 19th century. He observed in Americans a need to use their religion to instill morality into the affairs of their government.¹⁶ Studies of American life in the 20th century report a gradual move toward secularism, caused by increased mobility, more leisure time, and the increasing role of the mass media, among other factors; these same factors have influenced American religious attitudes and values as well.¹⁷

In spite of the increased secularism in 20th century American society, however, religion continues to play a major role in the lives of Americans, particularly when compared to the rest of the world.¹⁸ Although Gallup polls over the last 40 years have documented an overall decline in the way Americans perceive the importance of religion in their lives, poll results published in 1989 confirm the still overwhelming influence of religion on American life in

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spite of increasingly strong secular influences. Gallup reports that 90 percent of Americans have never doubted the existence of God, and roughly the same number pray at least once a week.¹⁹ Furthermore, four out of ten Americans attend church in any given week—more, as Garry Wills points out, than attend all sports events combined.²⁰ Significantly, in comparison to other countries, Americans rank second only to Malta in rating the importance of God in their lives.²¹

One of the major results of this religious influence on American values is that it forged the relationship between morality and politics noticed by de Tocqueville over 150 years ago. Many of the crises the United States has faced throughout its history are better defined in moral rather than political terms. Whether the issue has been slavery, civil and human rights, or war, a debate over morality is always at the center of the dialogue.²² Despite the separation of church and state in America, or as some propose because of it, religious ethics continue to exert a strong influence on the country's cultural and political life.²³

The Consequences of Rapid Change: The Meaning of Time and Technology

The newness of the American experiment, the lack of common ethnic bonds, and the absence of a homogeneous heritage all contributed to a perspective based on the future instead of the past. Immigrants came to America to escape religious persecution, famine, poverty, and war; they came to get away from and forget some aspect of their past. As the nation expanded south and west, certainly the pioneers looked ahead, not back, aware that they were participating in the development of a new society, not acting as part of a finished one.²⁴ They believed they could influence this new society for the better.

As Americans looked ahead, however, it was not always to the distant future. The first colonists trying to scrape out an existence in harsh conditions, the pioneers

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crossing the Great Plains, families struggling through the Great Depression, and farmers eking out a living in the Dust Bowl all adopted an attitude focused on day-to-day survival, even if their short-sighted outlook was balanced by their hopes for improvement over the long term and their religious belief in immortality.

Are these experiences connected to the compelling need Americans have today for instant gratification? Jeremy Rifkin believes they are: "Because we are a nation of pioneers, we are imbued with the notion that we must keep on moving and never look back."²⁵ Fast food, 24-hour news coverage, nationwide overnight package delivery services, instant communications, and the virtual demise of "slow" modes of passenger transportation (bus and train) in favor of flying, all point to a pressing national need to satisfy an ever-increasing variety of demands in near real time.

Americans are not good at waiting. What other culture could conceive the need for a one-minute manager? More than any other people on earth, Americans have institutionalized the need for immediate action and instantaneous results, and have designed the technology and adapted it to satisfy those obsessions.

The importance of technology began to take root very early in the United States. From the early days of the Republic, when Thomas Jefferson lost the debate on whether to allow masses of European immigrants into the country (providing the workforce and thus giving priority to manufacturing over the independent farming he favored), the United States moved toward industrialization and, therefore, technology.²⁶ The Civil War boosted the economy of the North by fueling its industrial capacity.²⁷ Subsequent experience in both peace and war emphasized the importance of manufacturing, science, and technology.

By the mid 20th century, burgeoning technology was beginning to force a faster pace of life, a "speed-up of change," and the development of a throw-away society.

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Alvin Toffler's book *Future Shock* was written in 1970, in part to help Americans survive their "collision with tomorrow" and to help them understand "what happens to people when they are overwhelmed by change."²⁸ Toffler explores numerous facets of American society—frequent job changes, the moves they entail, the loss of friends along the way, and the impermanence of even houses and cities. To illustrate his point, he relies on the observations of Michael Wood, an English writer, who notes: The American " . . . made his world yesterday, and he knows exactly how fragile, how shifting it is. Buildings in New York literally disappear overnight, and the face of a city can change completely in a year."²⁹

Americans lead considerably different lives than even their European counterparts. Many of the latter still spend their entire lives in the small village in which they were born, with three generations sharing a house built to last several hundred years. American homes, the majority built out of wood, need considerable care and repair to last 50 years. While there has been some recent resurgence in the popularity of restoration, in general, Americans want new, updated homes with the latest architectural details and conveniences. These values neither complement nor support the preservation of the majority of American houses.

This hunger for newness and technology permeates American life, usually at the expense of tradition. As a result, the United States has become a throw-away society. Americans, fascinated by newness, have institutionalized change and raised the short term view of the future to an art form. While they may not always enjoy change, they probably accept it more readily than many other cultures. Their love of newness and technology points to that conclusion, as does their apparent acceptance of a lack of permanence in their lives. In practice, Americans eschew time as a continuum, rarely looking to the past and, when looking ahead, viewing only the near term, not the distant

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future. They act in almost every facet of life as if time were the enemy.³⁰

DOMINANT AMERICAN VALUES AND THEIR INFLUENCE ON AMERICAN STRATEGIC CULTURE

" . . . the ultimate source of strategy lies in the values of the people of a nation."³¹

Henry E. Eccles

The values that best define American strategic culture are those derived from the major historical influences described above:

- the tendency toward isolationism
- the adherence to an ideology based on individual rights and freedom
- the purely political interpretation of what it means to be an American
- the balance between the Protestant work ethic and capitalism
- the moralistic approach to politics
- the ethnocentrism born of the belief that Americans occupy the moral high ground
- the chauvinistic opinion that the entire world aspires to be American
- the overwhelming need for immediate action and gratification.

All these qualities influence, and at times even dictate, the American stance on political issues, international affairs, the value of negotiation, and the use of military force. Crucial diplomatic and military policies reflect these basic American values. In particular, these values undergird the reasoning behind decisions made on issues of the greatest strategic importance.

Nature of Power and Authority

Since American citizens form the basis of power in the United States and the government is "of the people, by the people, for the people," the basic values found in American culture have a subtle but far reaching effect on the way Americans perceive national power as well as on the way the United States exercises power. Majority rule tempered by compromise may best describe the way domestic decisions are made in Washington. Consensus building has become the basis for most policy decisions. The American emphasis on individualism allows for, and even encourages, divergence of opinion on matters ranging from domestic policy to foreign affairs; this emphasis justifies some level of give and take on even the most important policy issues. In the Congress as well as in the executive branch of government, willingness to compromise stems at least in part from the knowledge that the tables may be turned in the future and that compromise on issues of lesser importance now may lead to victory on issues of greater importance later, through the reciprocal compromise of others.

American citizens **know** they can influence the decisions made by their government—they call and write their representatives and even contact the President of the United States to communicate their problems, their positions, and their prescriptions for the solution of a broad range of problems. The number and success of Congressional lobbies reflect this ingrained American tolerance for compromise on differences of opinion and also point to the confidence Americans have in their ability to influence government, if not as individuals, then as members of a group. They join and support these organizations in large numbers to help further their favorite political causes; there were 17,500 special interest group lobbies in the United States in 1985.³² Americans expect success when taking these steps; they feel justified in complaining vehemently when the vote goes the other way.

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The organization of the Congress, coupled with discrete electoral bases, increases the responsiveness of each member to constituents and special interest groups alike.³³ Elected officials are always aware that they must represent the views of their constituencies, even in the face of compromise politics. The fact that most incumbents are re-elected (in the 1990 elections, only one of more than 25 incumbent senators up for reelection lost his seat) reflects more than just inertia. What might appear to an outsider to be parochialism on the part of various representatives and senators often sells exceedingly well in their home districts.

Once decisions have been made, and the policy or the law is institutionalized, however, a different American value often gains predominance. Americans not only believe in the right of free speech and the value of the individual, they also adhere to the idea (instilled through the educational system) that good, patriotic Americans don't question the country's major institutions.³⁴ As the 15 January 1991 deadline imposed by the United Nations for Iraq's withdrawal from Kuwait approached, the Congress feverishly debated the advantages and disadvantages of using US military power to enforce the UN resolution. Once the vote was taken, however, even the senators and representatives who had forcefully argued against a military solution stood behind the decision, saying the time for debate had passed and the time to support the decision was at hand. This stance was certainly influenced in part by both belief in the need to support the military (an important institution) and belief in and acceptance of consensus politics and majority rule.

In foreign policy matters often weightier than mundane domestic affairs, consensus is not always an important element of power, however. When the power to be exercised is influential, and especially when it is coercive, the American people have little formal entitlement to consensus. The Constitution is not very specific in detailing the exact parameters of Presidential power and responsibil-

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ity concerning the conduct of foreign affairs and war vis a vis that of the Congress. The strength of the chief executive in these areas today is derived as much from legal interpretation and precedent, tradition, and force of individual personality as from Constitutional dictum.³⁵ The ongoing dialogue over the founders' intent regarding foreign policy responsibility and the continuing debate over the efficacy of the War Powers Act (1973) offer the best evidence that the need for consensus is limited when it comes to decisions on the application of American influence and military force as a means to accomplish foreign policy. Those championing an expanded role for the Congress in foreign affairs and decisions related to the use of force are, in effect, trying to expand the use of consensus into a new arena, so far with seemingly little success.

Morality in Affairs of State

Moralism has often been the pivotal point in justifying American decisions, particularly in the realm of foreign policy. More than any other nation, the United States sees itself as an arbiter of morality, a "city on the hill" with a "special moral-political mission in the world."³⁶ George Santayana observed that being an American is itself almost a moral condition.³⁷ The American need to define political issues in moral terms is one consequence of an American historical experience shaped by Protestant ethics. It is also a quality often magnified by the country's ethnocentric tendencies.

Many Americans believe that other countries have similar ethical standards and the same world view as the United States—and, moreover, that those countries which don't, should. It seems inherently American to ignore or dismiss other cultures and other standards of behavior in favor of what Americans know is "right." The drawback to using a culturally biased view of morality as the basis for foreign policy decisions is that it often offends foreign parties who have a different viewpoint and who resent the

implication that not only their viewpoint, but also their motives, are incorrect or morally lacking.

Morality is, in practice, an imprecise term. There is no international standard, either in law or custom, that would provide a foundation of universally agreed upon moral principles on which to base political action. Hans Morganthau mentions the conflicts that can arise out of basing a political system on a religious tradition that dictates giving unto Caesar the things that are Caesar's, on one hand, but on the other hand directs humans to obey God, not man.³⁸ And although it seems clear that there is a defined body of traditional American principles of justice and ethics based on equality and individual rights, broadly underscored by Protestant ethics, even Americans don't always agree on one specific interpretation of morality as it applies to a particular political event or circumstances.³⁹

"No blood for oil" quickly became the rallying point for anti-war protesters in the United States during the opening days of 1991, as war with Iraq over the occupation of Kuwait seemed increasingly inevitable. As usual in American politics, citizens on both sides of the issue cited moral reasons for their respective stances. While the peace activists' slogan succinctly expressed their belief in the immorality of killing for material resources, those who supported the use of force emphasized traditional just war criteria in propounding the moral responsibility of the United States to stand up to Iraq's aggression against a helpless people and to liberate innocent Kuwait from the grip of a Hitler-like dictator. Both sides sought to avoid even the slightest hint that the US was fighting a war solely to protect (selfish) US interests. In truth, *Realpolitik* may often influence American foreign policy decisions, but US national interest is rarely the only stated explanation for any such choice. American foreign policy decisions are almost always justified at least partially in moral terms.

Americans do not just interpret US policy in moralistic terms; they also examine actions of foreign governments

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through uniquely American moral filters. Such moralistic condescension has led to direct or indirect intervention by the United States in both the internal and external affairs of other nations. George Kennan noted that Americans believe they have a moral duty to detect "lapses on the part of others, to denounce them before the world, and to assure . . . that they were corrected."⁴⁰ The general diversity of the American viewpoint and the influence of special interest groups with ethnic, racial, or ideological bases, however, have often combined to produce a certain lack of continuity in American dealings with other nations.⁴¹

The swings in American foreign policy in the 20th century are also the result of the opposing pulls of moral rhetoric and pragmatism. US policies supporting self-determination, human rights, and democracy abroad often compete with a rarely expressed, poorly defined, but increasingly strong undercurrent of thought that favors action only when it benefits US national interests.⁴² A sampling of several recent initiatives points to a rather eclectic style in the development of American policy. In 1986, the Congress passed legislation preventing US companies and their foreign branches from further investments in, or loans to, South Africa, until such time as apartheid was dismantled.⁴³ In 1990, the United States first led the world's condemnation of Iraq's invasion of Kuwait and then went to war over it less than six months later. At the same time, the US took no overt action and provided little more than moral support for Lithuania, illegally annexed by the Soviet Union years ago and more recently occupied by the Soviet army in an attempt to smother the movement for Lithuanian independence.

The opposing pulls of moral rhetoric and US self interest present varying bases for these policies and decisions. The anti-apartheid legislation is clearly based on human rights, with little regard for US economic interests. The rationale behind the military action in the Middle East is based on both national interests and upholding moral stan-

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dards—a case in which two often opposing forces coincide, although the war is most often publicly justified on moral grounds. Finally, US inaction on behalf of Lithuania seems to indicate no critical US interest would be met by intervention in the internal affairs of the Soviet Union, even though the Soviet approach offends the moral sensibilities of Americans. Although it is US interests that underlie many policy choices, it seems that moral justification is the *sine qua non* for persuading the American public to accept the actions of the government concerning US foreign policy, regardless of the basis upon which those decisions were made.

The Nature and Influence of Time and Technology

The fixed American focus on the present and the near future also bears directly on the country's approach to foreign and domestic problems. In describing US political culture, Colin Gray reveals impatience "for visible marks of achievement" as a basic characteristic of Americans.⁴⁴ The need for action and quick closure has spilled over from Americans' personal lives into their expectations of governmental affairs. Americans don't want to wait for their food and entertainment, and they don't want to wait for results in governmental programs, either. They want quick resolution of deficit spending, trade imbalances, diplomatic initiatives, and military conflicts. While other cultures have developed orientations based more upon the future or the past, Americans can hardly imagine sacrificing the present for either of those.⁴⁵

The focus on the short term future can perhaps be traced back to the roots of American existence. The United States is a nation founded by peoples who demanded and realized rapid social and political transformation merely by crossing an ocean. The history of the country spans so short a time, and yet encompasses such great change—factors which contribute significantly to the founders' descendants' acceptance of change and, often, even their de-

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mand for it. If Americans frequently dismiss Santayana's dictum that "those who ignore history are condemned to repeat it," it is in part their cultural understanding of time that causes their shortsightedness. Americans find it easy to believe that monumental change can occur speedily and painlessly—thus, their casual disregard of Santayana's maxim.⁴⁶

The American desire for quick results has contributed to the same sorts of swings in foreign policy that the friction between moralism and *Realpolitik* has produced. In fact, the American conception of decision-making responsibility barely extends past the period of time that separates each new election.⁴⁷ Americans have demonstrated again and again that they place less value on long term solutions, whether in their personal lives or their national security policies, than on the quick fix. Americans tend to organize for, and be more comfortable with, crisis management than they are with strategy making.

The 1991 war in the Middle East provides numerous examples of the American obsession with near-real-time results. Americans watching the evening news on 6 January 1991 knew the war had begun at literally the same instant as Baghdad came under attack, thanks to Cable News Network correspondents Peter Arnett, John Holliman, and Bernard Shaw, reporting live via satellite from a hotel room in the Iraqi capital. The American public learned of Iraqi Scud missile attacks simultaneously with (and sometimes even before) residents of Tel Aviv. After US and Allied night bombing raids in Iraq, American media representatives clamored for immediate and accurate bomb damage assessment.

Public opinion surveys taken within the first 10 days of the war concentrated on Americans' views on just how long the war would last. Less than two weeks into the conflict, *The Washington Post* credited Americans with little patience and a short attention span; according to one report, the Americans didn't just want the ground war to

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start, they wanted it to be over already.⁴⁸ The timing of the article itself, as much as its content, speaks volumes.

This short term orientation derives its strength not only from the history of the United States, but from the technological explosion as well. While Americans often deal suspiciously with technological innovation at first, they adapt to it and adopt it probably as quickly as any culture in the world. When the first automated bank teller machines were introduced, customers were enraged to have to deal with a machine instead of a person. Today, there are automatic teller machines literally everywhere that accept a variety of debit cards, not just those issued by that particular bank. Further, these machines seem to be the preferred way for many Americans to obtain cash. Certainly no other industrialized society has taken to technology as quickly and to the degree the United States has.

The American obsession with quick action has fueled technological advance, and technology, in turn, has sparked creative ideas for new applications. In communications, entertainment, information management, and defense, Americans demand options and services that fulfill their need for instant reward. Communications technology in particular has been "accompanied by a compulsion to know what was happening everywhere at all times."⁴⁹ Time-saving features are especially likely to succeed in the United States where, more than any other place on earth, time means money. A review of popular telephone services supports this point: call waiting and call forwarding both help reduce the time needed to communicate by telephone. Features commonly offered on telephones include speed dialing, automatic redial, a speaker (so the customer can talk on the phone, presumably while doing something else), and programming options for frequently dialed numbers. All these services and features point to the widespread American demand for time-saving technology.

Technology has also changed the way the world and, particularly, Americans conduct politics, diplomacy, and

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war. It is no longer necessary to wait days or weeks for a crisis to be resolved, since "new forms of communication [have] shortened and intensified the time frame for political debate and resolution."⁵⁰ Americans now expect quick consummation of diplomatic affairs. After all, that's what the technology is for.

Americans naturally turn to technology when they fight wars, just as they do in a variety of other pursuits, and they seem to feel comfortable with the idea. Technology has played a role in American warfare since the Civil War, when the introduction of rifled gun barrels and the miniball drastically increased the lethality of battlefield weapons. In the 20th century, technology has shaped strategy just as strategy has helped direct technological progress. The airplane was not originally designed to be used as an artillery piece, but after Billy Mitchell proved its worth as a bomber, it was adapted for that purpose. Conversely, the Manhattan Project was aimed at developing a weapon, but efficient peacetime energy production methods resulted from that military design venture as well.

Speed is not the only advantage Americans see in improved technology. Whether in household appliances or computers, Americans want not only speed, but also increased options, capability, and accuracy. When it comes to their weapons, Americans want added lethality as well. Getting "more bang for the buck" usually requires higher technology. The country's zeal for the technological has also led to the substitution of technology for human effort in military operations—in decision-making and intelligence-gathering as well as on the battlefield. Americans also appreciate technology because it has allowed them to minimize American, if not enemy, casualties. According to Max Lerner, the American attitude toward war was shaped by the "hatred of using and losing American lives."⁵¹ This is understandable in a country that values human life.⁵²

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Value of Human Life

Relative to a number of other cultures, Americans place an extremely high value on human life, an outgrowth of a religious and democratic heritage that emphasizes the importance of equality under the law and the value of the individual. Americans also prize high **quality** of life, as evidenced by their Constitutional claim to the inalienable rights to life, liberty, and the pursuit of happiness. Their participation in a variety of humanitarian missions and services to the less fortunate of the world also underscores their belief in compassion and charity toward those less fortunate. Americans have taken extraordinary actions to help preserve human life and improve its quality. They have supported innumerable worldwide humanitarian missions to feed starving people, to relieve suffering caused by natural disasters, and to resupply entire cities cut off from food and other necessities. Compared to some other cultures, Americans take exceptional measures to protect and preserve human life.

Americans often adapt technological advances for life-saving purposes. Advances in medicine now allow doctors to diagnose, treat, and save people whose conditions would have been terminal just a few years ago. During the war in Vietnam, American search and rescue teams used technology to help locate and recover downed aircrew members in seemingly hopeless positions surrounded by the enemy. And in the recent Gulf war, the United States carefully selected military targets and attacked them with precision-guided munitions (presumably to minimize casualties among the civilian population), and it deployed high-technology defensive weapons systems to limit civilian casualties from Iraqi missile attacks on both combatant and noncombatant countries. These measures suggest the relative value Americans place on human life, in spite of documentation to the contrary such as the fire bombing of Dresden and the use of the atomic bomb against Japan; the latter was justified, however, as a way to prevent further

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American casualties. It is important to note that although the United States often adapts and employs defense technology to minimize loss of life, those same systems were developed for very different reasons. Precision-guided munitions were not acquired for solely humanitarian reasons, but rather to increase weapon accuracy and lethality, as well as to protect the lives of the Americans using these weapons. Advances in weapons capabilities have often been the result of the unfettered momentum of the American obsession with technology. That technological breakthroughs have allowed the military to enjoy an unprecedented level of target accuracy fits conveniently into the American value system.

Terrorist groups and hostile nations have tried many times to capitalize on the value Americans place on human life by taking hostages and using US citizens as human shields. These tactics indicate that to outsiders, Americans place such a high value on human life that the country might submit to mass blackmail rather than see its individual citizens harmed. This attempted blackmail has not succeeded, possibly because it considered only one facet of the American psyche, but it has already inflicted, and will continue to inflict in the future, considerable anguish on a people who value individual freedom and human life.

Utility of Force

When confronted by any national security or foreign policy situation that could require military action, Americans' first tendency is to try to avoid the sacrifice of life. In peacetime, Americans are willing to spend huge amounts of money on foreign aid—presumably to prevent the need for war. When war threatens, Americans still want to believe that with enough money, or diplomacy, or pragmatic reasoning, they can buy peace.⁵³ The isolationist, ethnocentric, and moral qualities of the American psyche have combined to produce a national attitude that considers the use of force to accomplish national security objectives as a last resort.

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The historical record of American participation in conflict points over and over again to a peace-loving society that goes to great lengths to avoid embroilment in foreign conflicts that do not directly threaten the United States. In this regard, the United States mirrors Carnes Lord's assessment that liberal democracies tend to view war as unnatural and even illegitimate, since it requires abrogation of the right to life principle on which the democracies were founded.⁵⁴

World events that directly threaten the physical security of the United States have proven to be very few, in spite of advances in communications, transportation, and weapons technology that have shrunk the size of the world. Americans still feel fairly safe and protected at home, although in the past 40 years there have been episodes of national fear verging on panic over the threat of nuclear war. In general, since Americans assume that peace is a natural condition, their normal proclivity is to ignore all but the most obvious foreign threats, and, even when confronted with one, to try to buy or bargain their way out of war. Once convinced of the threat and the need to fight, however, Americans have often assumed a crusading attitude toward war.⁵⁵

Americans fight wars for ideals. Other nations fight for survival, for material treasure, or for land, but the United States sees war as a conflict of good versus evil, in which good should always triumph. The American mind set cannot comfortably accommodate wars waged for goals that do not fully comply with the traditional American definition of justice and morality. In this regard, Colin Gray sees the protests against war in Vietnam as a singularly American phenomenon—one caused by the unique need to rationalize the war in terms of American values.⁵⁶

Several other factors helped underpin the American attitude toward participation in conflict, particularly in the first and second World Wars. Americans always believed in, and relied upon, their initiative, knowhow, and moral superiority to make things work out right. Their history

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proved to them that they had these qualities and that they could use them to advantage. Their forefathers had braved the wilderness, the frontier, and the Depression and had come out stronger and more self-assured for their experiences. Americans had plenty of experience "scratching an existence from hard ground" and it made them self-reliant. They believed they could do anything they set their minds to, and that included fighting and winning wars. Their experience in World War II, a war fought for moral and idealistic reasons, served to confirm Americans' right to believe in their own optimism, self-confidence, superiority, and invulnerability.⁵⁷

Once Americans are committed to war, winning becomes everything. International security issues are, for Americans, games to be won, by methods as brash as necessary, without regard to style, subtlety, or logic.⁵⁸ Just as the country has demonstrated its willingness to expend vast resources to keep the peace, it has also proved its commitment to employing its material wealth to winning the war, once engaged.⁵⁹ This differs from other countries' approaches to winning wars. While the Germans, British, and French all have focused on strategy and produced military theorists and practitioners like Clausewitz, Liddell Hart, and Napoleon, historically, the United States has depended on its material resources and managerial expertise, not its youth or perfectly planned and executed strategies, to win wars. The approach has been largely successful. D. W. Brogan, commenting on the "American Way in War," asserted that "they like to fight in their own way and . . . when they do . . . they win."⁶⁰

In a direct reflection of American society's ambivalence toward the use of force in general and the defense establishment (those who specialize in the use of force)⁶¹ in particular, the military in the United States has historically had demonstrably less clout than the militaries in various other societies. The idea of the citizen soldier is revered in America; the professional soldier, in contrast, has often

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been distrusted and even disdained.⁶² There has been a surge in military power following the second world war, but after over 200 years of experience, the basic American principle of civilian control of the military still remains strong; the President, a civilian, is the Commander in Chief of the armed forces, and the Department of Defense and each of the services are headed by civilian secretaries. This arrangement seems fitting in a country that until the second half of the 20th century felt it was far removed from external threats, but, once threatened, fully capable of mobilizing whatever resources were needed for defense and applying them successfully.⁶³

CONCLUSION

Tracing the consequences of historical experiences and environmental challenges faced by Americans, and assessing their impact on national values, leads to certain conclusions concerning American strategic culture. These conclusions support Colin Gray's assessment, quoted at the beginning of this essay, that "America's style encompasses oscillations between extremes, and both extremes are quintessential American."⁶⁴ What is consistent about the American approach to politics, foreign affairs, and even strategic decisions is that as a people, they are comfortable with paradox. They tolerate inconsistency.

The frequent contradictions that characterize American foreign policy and diplomatic affairs are best explained by the opposing pulls of divergent beliefs which somehow the national psyche has melded together into a single, but rather schizophrenic, value system. Ambivalent over their leadership role in the world, Americans continue to vacillate between doing what they, in their ethnocentric wisdom, know is best for other countries, and doing what is best for the United States. The decline of communism has done nothing to stem that chauvinism. The implications of conflicting American approaches to international politics

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promise a meandering path for a new world order heavily influenced, if not always led, by the United States.

Americans built their entire approach to government around the value of the individual. The concept was not only stated in the Declaration of Independence and guaranteed by the Constitution; it was reinforced by the emphasis on the individual in the religious and moral foundations of the country. At the same time Americans espoused the value of individual diversity, however, they devised a narrow political identity with which everyone had to conform, or risk being labeled unpatriotic. Patriotism has always been held to be synonymous with loyalty. The successful merger of diversity and unity into a single narrow definition of political nationality is the first paradox of American society.

A second paradox is the continuing importance of religion in what is commonly regarded as the world's most secular country. In spite of the seemingly contradictory facts that court decisions have banned prayer in public schools while evangelical religion has undergone a resurgence in the United States, Max Lerner's 1957 observation is still true today: that the US is as secular as it could possibly be, given the significance of religion in the country's development and heritage, and as religious as any society could be that revolves around the purely secular.⁶⁵ Moralism still plays a role in American foreign affairs and national security decision-making, even if that role is solely to provide an acceptable rationale for policy and action alike.

A final paradox is that a country with an isolationist mentality and a tendency toward distaste for armed conflict can, once engaged, enjoy war so much. Stephen Budiansky's 21 January 1991 opinion piece in *US News and World Report* was written too soon. Budiansky argued that Americans would approach the coming conflict in the Persian Gulf understanding its full implications, not filled with the naive assumptions of the past about the glory of the

battlefield. As it turned out, the naivete was his. He asserted that it would be impossible today to understand the Washington ladies who drove their buggies out to Manassas to watch the first battle of the Civil War; instead, the entire world became voyeur to the war, watching Iraqi Scud missile attacks in real time and thrilling to reruns of gun camera film documenting the successes of the air war. As much as Budiansky would like to believe that American jingoism is dead, the glory of war did not end for Americans in the jungles of Vietnam as he proposed.⁶⁶ Rather, the war in Vietnam may prove to be the exception to the American rule that says GI ingenuity and US superiority will conquer all.

After the requisite initial agony, the United States has fought a war in the Persian Gulf, at least in part for material gain, although the reasons were couched in more acceptable moral terms. America went to war and won handily again in the time-honored American way—with technology and resources expended lavishly to minimize American casualties and end the war as quickly as possible. The public response to the early successes as well as the victory, while perhaps not as quaint as in the past, has been marked by passionate displays of patriotism. A more sophisticated American society has merely replaced the jingoistic songs of the two world wars with chauvinistic political cartoons.

Budiansky, and probably even Saddam Hussein, ignored this third paradox. They were right when they detected the chronic American misgivings about going to war, but they were wrong in dismissing the national fervor that has traditionally accompanied US participation in conflict. The lesson to others is to ignore the paradoxes that combine to produce American strategic culture.

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NOTES

1. Colin S. Gray, "National Style in Strategy: The American Example," *International Security*, Fall 1981, p. 44

2. Colin S. Gray, *War, Peace and Victory: Strategy and Statecraft for the Next Century*, New York, Simon and Schuster, 1990, p. 48.

3. Philip Gleason, "American Identity and Americanization," *Harvard Encyclopedia of American Ethnic Groups*, Stephen Thernstrom, ed., Cambridge, MA, The Belknap Press of Harvard University Press, 1980, pp. 31-32. One of the paradoxes of American life is that this new nation, founded on the principles of social equality and individual freedom, should tolerate, much less institutionalize, slavery. From the beginning, the notion of American nationality excluded blacks and native Americans. As other groups of immigrants arrived, they too, at first, fell outside the definition. See Max Lerner, *America as a Civilization*, New York, Simon and Schuster, 1957, pp. 502-503. Over time, these contradictions between the nation's principles and its actions became more apparent and "those principles . . . worked historically . . . to make the practical boundaries of American identity more congruent with its theoretical universalism" (Gleason, p. 33). This dichotomy between ideals and reality still exists today, in spite of significant progress in civil and human rights over the last 200 years.

4. Horace M. Kallen, *Culture and Democracy in the United States: Studies in the Group Psychology of the American Peoples*, New York, Boni and Liveright, 1924, p. 52.

5. Gleason, p. 32.

6. Kallen, p. 51.

7. Michael Walzer, "What Does It Mean to Be an 'American?'" *Social Research*, no. 57 (1990), p. 602.

8. Michael Olneck and Marvin Lazerson, "Education," *Harvard Encyclopedia of American Ethnic Groups*, Stephen Thernstrom, ed., p. 304. It is also interesting to note that the lack of a national school system effectively prevented (and still prevents) arbitrary testing that would divide students into white collar and blue collar educational tracks early. University attendance still does not depend on the score of an exam taken at age 10 or 12. It depends on completing high school with grades high enough to meet the college entrance requirements. It permits the illusion that in the United States, anyone can succeed, and thus furthers the belief in social equality.

9. Dolores Curran, *Traits of a Healthy Family*, New York, Ballantine Books, 1983, p. 85.

10. Archie Roosevelt, *For Lust of Knowing: Memoirs of an Intelligence Officer*, Boston, Little, Brown and Company, 1988, p. 441.

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11. Mark A. Noll, ed., *Religion and American Politics From the Colonial Period to the 1980s*, Oxford, Oxford University Press, 1990, p. 20.
12. Lerner, p. 704.
13. Ibid., p. 711.
14. Irving Kristol, "On the Character of the American Political Order," *The Promise of American Politics: Principles and Practice After Two Hundred Years*, Robert L. Utley, Jr., ed., Lanham, MD, The American University Press, p. 12.
15. Max Weber, *The Protestant Ethic and the Spirit of Capitalism*, trans. Talcott Parsons, Gloucester, MA, Peter Smith, 1988, pp. 62-64.
16. Alexis de Tocqueville, *Democracy in America*, trans. George Lawrence, New York, Harper and Row, 1966, p. 514.
17. Gabriel A. Almond and Sidney Verba, gen. eds., *The Civic Culture Revisited: An Analytic Study*, Boston, Little, Brown and Company, p. 206.
18. Herbert McClosky and John Zaller, *The American Ethos: Public Attitudes Toward Capitalism and Democracy*, Cambridge, MA, Harvard University Press, 1984, pp. 103-104.
19. George Gallup, Jr. and Jim Castelli, *The People's Religion: American Faith in the 90s*, New York, Macmillan, 1989, pp. 33, 45, 48, 75.
20. Garry Willis, *Under God: Religion and American Politics*, New York, Simon and Schuster, 1990, p. 16. Statistics quoted from Gallup and Castelli, *The People's Religion*, pp. 33 and 48.
21. Gallup and Castelli report that Americans rate the importance of God in their lives as 8.21 on a scale of 1 to 10, 10 being the highest. Malta reports a rate of 9.58. See *The People's Religion*, p. 47.
22. Willis, p. 25.
23. Ibid., pp. 383-385.
24. Gleason, p. 33.
25. Jeremy Rifkin, *Time Wars: The Primary Conflict in Human History*, New York, Touchstone (Simon and Schuster), 1987, p. 77.
26. Gleason, p. 33.
27. Paul Kennedy, *The Rise and Fall of the Great Powers*, New York, Vintage Books, 1987, pp. 179-182.
28. Alvin Toffler, *Future Shock*, New York, Bantam Books, 1971, p. 1.
29. Ibid., p. 55.
30. Rifkin, p. 73.
31. Henry E. Eccles, "Strategy—Theory and Application," *Naval War College Review* 32 (May/June 1979), p. 13.
32. The number of lobbies or special interest groups in 1985 is reported to have been 17,500. See Charles W. Kegley, Jr. and Eugene R. Wittkopf, *American Foreign Policy: Pattern and Process*, 3rd ed., New York, St. Martin's Press, 1987, pp. 276-285 and Kenneth M. Dolbeare and Murray J. Edelman, *American Politics*, 5th ed., Lexington, MA, Heath, 1974, p. 445 for a further discussion of special interest groups.

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33. Thomas E. Mann, "Breaking the Political Impasse," *Setting National Priorities: Policy for the Nineties*, Henry J. Aaron, ed., Washington, The Brookings Institution, 1990, p. 302.
34. Dolores Curran, *Traits of a Healthy Family*, New York, Ballantine Books, 1983, p. 85.
35. Kegley and Wittkopf, pp. 336-338.
36. Irving Kristol, "Defining Our National Interest," *The National Interest*, Fall 1990, p. 19.
37. From George Santayana, *Character and Opinion in the United States*, quoted in Henry Steele Commager, *The American Mind: An Interpretation of American Thought and Character Since the 1880s*, New Haven, Yale University Press, 1950, p. v.
38. Hans J. Morganthau and Kenneth W. Thompson, *Politics Among Nations: The Struggle for Power and Peace*, 6th ed., New York, Alfred A. Knopf, 1985, p. 246.
39. George F. Kennan, "Morality and Foreign Policy," *Foreign Affairs* 64 (Winter 1985-86), p. 208.
40. *Ibid.*, pp. 208-209.
41. *Ibid.*, p. 210.
42. Kristol, pp. 17-18.
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44. Gray, p. 196.
45. As a consequence, Americans have shown themselves to be both historically illiterate and generally averse to forward-looking strategic planning.
46. Daniel J. Boorstin, "History's Hidden Turning Points," *US News and World Report*, 22 April 1991, p. 52.
47. Rifkin, p. 78.
48. Martha Sherrill, "At Home With the Familiar Shadow of War," *The Washington Post*, 29 January 1991, sec. 2, p. B4.
49. Rifkin, *Time Wars*, p. 168.
50. *Ibid.*, p. 169.
51. Lerner, p. 910.
52. Gray, pp. 28-29.
53. Lerner, p. 911.
54. Carnes Lord, "American Strategic Culture," *Comparative Strategy* 5 (1985), p. 273. Lord provides a discussion of the effects of the geopolitical situation of the United States and the influences of liberal democracy on strategic culture. See pp. 272-274.
55. *Ibid.*, p. 908.
56. Gray, p. 26.
57. Both Commager and Gray comment on this characteristic. See Commager, p. 431, and Gray, p. 26.

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58. Gray, p. 356.

59. Lerner, pp. 910-911.

60. D. W. Brogan, *The American Character*, New York, Alfred A. Knopf, 1944, p. 151. See also Gray, *War, Peace and Victory*, pp. 356-357.

61. John Shy, "The American Military Experience: History and Learning," *Journal of Interdisciplinary History*, Vol. 1 (1971), p. 220.

62. Commager, p. 18. It is important to note, however, that attitudes toward the military vary in different parts of the country.

63. Gray, pp. 23, 29.

64. *Ibid.*, p. 44.

65. Lerner, p. 703.

66. Budiansky, Stephen, "A Farewell to the Romance of War," *US News and World Report*, 21 January 1991, p. 6.

2

CHAOS, CRITICALITY, AND STRATEGIC THOUGHT

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A REVOLUTION OF UNPRECEDENTED SCALE IS TAKING PLACE that will transform strategic thought in ways yet unimagined. The bittersweet truth is that this has little to do with the "new world order" set to follow the end of the Cold War and the success of *Desert Storm*. The true revolution in progress is a scientific one, and its effects will change the pattern both of warfare and of strategic thought. Yet, our attention is fixed on this year's international reshuffling. Absorbed by the transitory, we ignore the epochal.

Scientific advances are pushing us beyond our reductionistic Newtonian concepts and into the exotica of chaos theory and self-organized criticality. These novel lines of scientific inquiry have emerged only in the past three decades; in brief, they postulate that structure and stability lie buried within apparently random, nonlinear processes. Since past scientific revolutions have so transformed conflict, it is essential for US strategists to understand the

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changes in progress. One reason why this is important is technological: new principles yield new classes of weapons, just as basic quantum theory and special relativity ushered in nuclear devices.

A second and more fundamental motivation for understanding scientific change is the fact that our view of reality rests on scientific paradigms. The world appears to us as an intricate, disordered place, and we search for frameworks that will make sense of it all. These frameworks derive overwhelmingly from the physical sciences. Scientific advances, therefore, offer us new ways of understanding a given environment, and can suggest innovative solutions to policy dilemmas. But despite the strategic community's hunger to grasp the technological benefits of change, we have been unable to adapt the advances to strategic thought.¹ To redress the imbalance, this paper will focus on the conceptual aspects of scientific change, touching only lightly on its hardware benefits.

The strategic community's resistance to new paradigms is a tribute to the power of the current framework. The specific paradigm that permeates contemporary Western thought is best described as the Newtonian world view. This paradigm is deterministic, linear, concerned with the predictable interaction of objects and forces, and oriented toward sequential change. This single world view has powerfully influenced all areas of human inquiry. One commentator succinctly observes: "The other sciences accepted the mechanistic and reductionistic views of classical physics as the correct description of reality and modeled their theories accordingly. Whenever psychologists, sociologists, or economists wanted to be scientific, they naturally turned toward the basic concepts of Newtonian physics."² As one of the social sciences, military science rests upon these same assumptions. Precisely speaking, however, it is the specific discipline of **mechanics**—the science of motion and the action of forces on bodies—which has captured our imaginations.

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Why does the world view of mechanics have such a hold on strategic thought? Part of the answer lies in the fact that military and political science truly developed as sciences in the 18th and 19th centuries, coincident with the rise of classical physics and mathematics. Einstein describes the spirit of the age:

The great achievements of mechanics in all its branches, its striking success in the development of astronomy, *the application of its ideas to problems apparently different and non-mathematical in character*, all these things contributed to the belief that it is possible to describe all natural phenomena in terms of simple forces between unalterable objects.³ [emphasis added]

There are, however, more tangible reasons. In the simplest sense, combat is mechanics. No surprise then that military strategy rests on a reductionistic, mechanistic framework. Since national strategy often borrows the metaphors of combat—peace “offensive,” the Cold “War”—it is again no surprise that national strategy reflects the same bias. Politics is a continuation of war through linguistics.

A second reason for the long-standing influence of mechanics is its accessibility. Before this century, physics (and its offshoot discipline, chemistry) had made relatively greater strides than had other branches of science. Biological sciences were in their infancy until the latter part of the 1800s, and the advances which would challenge the structure of Newtonian physics were still in the future. In the previous century, mechanics was predominant.

Finally, this mechanistic world view is reassuring, since it postulates a world of sequential change. It promises strategists that the course of events can be predicted if the underlying principles have been discovered and if the few variables involved are known. Unsurprisingly, therefore, modern theorists of war drew heavily and subconsciously on this mechanistic paradigm. On the level of military strategy, consider Clausewitz: the language of *On War* be-

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trays the mechanistic underpinning: friction, mass, centers of gravity. Or Jomini, with his stress on the geometry of combat. On the level of national security strategy, note DOD's 1991 National Security Planning Guidance: "The demise of the Cold War can be likened to a monumental shift in the tectonic plates, unleashing a host of forces that are irrevocably reshaping the strategic landscape."⁴

Once this mechanistic world view gained currency, it never lost its grip. This stasis is the unrecognized core of so many of our strategic dilemmas. The essential conservatism of the national security establishment,⁵ combined with the understandable need for caution on central issues of war and peace, has discouraged theoretical innovation. The revolution in strategy founded on a mechanistic order of reality has been frozen in place, and the provocative doctrines of the last century have become the confining dogmas of this one.

Is there a problem? Conventional wars have validated much of Clausewitz, Liddell Hart, and others of that genealogy. The revolutions in warfare before 1945 have represented only changes on the mechanistic margin. Motorized warfare, for example, increases the options of an attacking force but is still amenable to Clausewitzian analysis. Air power shifts the battle to a true third dimension, but does not invalidate the paradigm. So, too, the increased destructiveness and accuracy of munitions leave war explainable within the classical framework. On the national strategic level, we still find it useful to examine the strategic balance between East and West, and to maintain and reform alliances that have their analogues in alignments of centuries past.

But we can draw only uneasy comfort from this. Within each honest strategist there is an impertinent voice whispering that life seldom stays true to predictions. The gap between theory and reality exists on the levels of both military and national strategy. Militarily, a number of weapons and modes of warfare have been developed in the

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past century which fit poorly within classical strategy. New weapons are comparatively easy to develop but difficult to place within a doctrinal framework. Biological agents and nuclear weapons are two of the tough cases. Indeed, the process of battle itself is disordered. Army doctrine predicts: "The high- and mid-intensity battlefields are likely to be chaotic, intense, and highly destructive . . . operations will rarely maintain a linear character."⁶

On a grand scale, the increasing complexity of foreign affairs cuts against the comfortable assumptions of classical strategy. Can we indeed describe our exquisitely variable international environment in traditional terms of "balance of power," polarity, or a shift of tectonic plates? The mechanistic world view is good but not good enough. The daily headlines bring inconvenient reminders of how oversimplified these models are.

Not only does classical strategic thought seek to explain conflict in linear, sequential terms, but it compels us to reduce highly complex situations to a few major variables. Traditionally, we see strategic thought as the interplay of a limited number of factors, principally military, economic, and political. More sophisticated discussions expand the set to include factors such as the environment, technological development, and social pressure. Yet, even this list fails to convey the full complexity of international affairs. There are religion and ideology, nonnational actors such as terrorist movements, and supranational actors such as global corporations. There are personalities and institutions which play significant roles. Moreover, as global communication increases, economic interdependence progresses, democracy spreads, and the number of policy influences grows exponentially. The accelerating pace of decisionmaking adds to the complexity. The closer we come to an honest appreciation of the international environment, the more we must confess that it is nonlinear and frustratingly interactive. This complicates analysis tremen-

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dously: "nonlinearity means that the act of playing the game has a way of changing the rules."⁷

Our daily experience as policy makers validates this. We brush against reminders of imperfection and randomness every day. The classical world view calls this "friction" and shunts it aside as a complication of the well-laid plans of policy makers.⁸ On reflection, though, it becomes clear that friction is the rule in life, not the exception. To keep our strategic paradigms workable, we have taught ourselves to ignore this. Yet, life is too complex to be described or explained by the interaction of a few simple variables.

We need to change our way of thinking about strategy. At first glance, this appears to be unrealistically ambitious. Strategic thought of the past few centuries does not appear to allow much room for innovation. As we have shown, however, our strategic frameworks are based on the mechanistic assumptions of classical physics. If we start with different assumptions, by incorporating different scientific paradigms, we may see more productive strategic principles emerge. A shift of framework is not a panacea—war and diplomacy will remain as demanding and dangerous as ever—but if we wish to pull ourselves out of the current tired centrist muddle,⁹ we must recognize the assumptions that permeate our strategic culture and open ourselves to new frameworks.¹⁰

THE DISCIPLINE OF CHAOS

There is a revolution waiting to be claimed within the context of chaos theory. This new science lies on the uneasy border between mathematics and physics, and is defined by certain key principles:

- Chaos theory applies to dynamical¹¹ systems — systems with very large numbers of shifting component parts.
- Within these systems, nonperiodic order exists; seemingly random collections of data can yield orderly yet nonrecurrent patterns.

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- Such "chaotic" systems exhibit sensitive dependence upon initial conditions; a slight change in any one of the initial inputs leads to disproportionately divergent outcomes.

- The fact that order exists suggests that patterns can be predicted in at least weakly chaotic systems.

The earth in revolution around the sun is nonchaotic. A slight change in orbital speed would yield only a slight change in its path of revolution. In contrast, a column of smoke rising into the atmosphere is chaotic. It rises straight up for a time, then suddenly breaks into a turbulent medley of whorls, twists, and zigzags. These loops seem to follow no particular order, yet mathematical modeling discloses regular patterns¹² when tracked. A slight change in velocity of the smokestream will form a completely different grouping of whorls and streams — yet this second smokestream will also yield mathematically regular patterns.

"Chaos" is an unfortunate shorthand for this discipline. The word carries associations of formlessness and pure randomness that complicate the conceptual task. "Nonlinear dynamics" is a less loaded, more descriptive term, but chaos is the widespread scientific label, so chaos it will be in this paper.

The chaos paradigm does not contradict the classical paradigm (chaos theory stems from classical physics and Cartesian mathematics), but transcends it. The classical framework describes the linear behavior of individual objects; chaos theory describes statistical trends of many interacting objects.

What are the implications of this science for the strategist? This paradigm is important for two reasons, one tangible and one theoretical: technological innovations which exploit chaos theory will change the hardware of war, and this science offers fresh insights as a new foundation of strategic thought.

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In hardware terms, chaos theory will have path-breaking effects on military affairs through changes in the way we use technology now, as well as through development of new types of weapons. Information theory, artificial intelligence, and the military technologies based on these sciences will be transformed. One researcher postulates that chaotic changeability "is the very property that makes perception possible."¹³ At the very least, robotics will see major strides, and we may be much closer to the day when armed robots will participate in combat.

The list of applications has no limit: epidemiologic spread, meteorology, frequency-agile radar, aeronautic design, and cryptology come easily to mind. Nuclear targeting may become more accurate, given chaos theory's ability to model fluid turbulence. Post-nuclear ecology is a topic also well adapted to nonlinear analysis, and future discussions of nuclear winter will have to encompass chaotic principles. Cryptology is an especially tantalizing case, since chaos theory poses the possibility that what we believe to be random may not always be truly random.

Technology aside, chaos theory has certain other battle-related applications. Researchers have sought for decades to make sense out of the many factors which comprise the chaos of battle. One scholar, Trevor Dupuy, has developed an elephantine mathematical model which attempts to analyze battles through the interplay of several dozen variables. This quantified judgment analysis model is "a method of comparing the relative combat effectiveness of two opposing forces in historical combat, by determining the influence of environmental and operational variables upon the force strengths of the two opponents."¹⁴ Although the focus of the model is historical, Dupuy suggests that it may be predictive. If so, the implications are tantalizing: commanders will be able to quantify their chances of battlefield success and systematically identify areas of weakness. Leaving aside the problem of subjectivity, the

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basic flaw is that the model is linear, yet the process of battle itself is tremendously nonlinear and irregular. Chaos theory may uniquely be able to take Dupuy's concept to its ambitious end.

On a theoretical level, we see a dismaying number of PhDs attempting to understand patterns of wars in history. In 1972, J. David Singer and associates claimed to find regularity in peaks of global violence over a 150-year period ("a rather strong periodicity emerges, with the dominant peaks about 20 years apart") as well as a peak in war beginnings in April and October.¹⁵ The goal of this research was to use the periodicity as a clue to factors which give rise to the violence. Other authors have linked patterns of conflict with "long cycles of world leadership" (Modelski), with polarity-stability models (Waltz), and with the Kondratieff wave cycle of economic prosperity and depression (numerous authors).¹⁶

As with the Dupuy model, chaos theory may be the tool that transforms these subjective undertakings from a parlor game to a predictive model. Chaos researchers have already found unexpected identical patterns in social phenomena as disparate as cotton price levels and US national income distribution. The attribute of **universality**—the principle that different nonlinear systems have inherently identical structures—is a central principle of chaos theory.¹⁷

Much research remains to be done on the applicability of chaos theory to operational and tactical analysis. On the one hand, the process of battle is universally acknowledged as disordered, and, thus, amenable to nonlinear analysis.¹⁸ On the other hand, combat involves only a small number of actors as we define them, generally one force versus a second; thus, theater-level combat falls outside of chaos theory, which describes the behavior of very large numbers of actors. Moreover, commanders expend tremendous effort in making armed forces act and interact in linear, mechanistic, and predictable ways. Devices such

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as rank hierarchies, military discipline, unit structure, and warrior tradition serve to impose order and overcome random behavior. This further limits the dynamism of the system and suggests that chaos theory may have only limited applicability on the level of military strategy.

Is battle truly chaotic or not? There are two useful answers to the question. One is to view the process of battle as fundamentally chaotic, but moderated to an orderly system with varying degrees of success as described above. A second possibility is to consider the process of battle as fundamentally linear and **nonchaotic**, and assert that it is our individual **perceptions** of battle which are disorderly. In any case, these questions will bear more inquiry.

THE CRITICAL THRESHOLD

The true value of chaos theory is to be found on a higher plane, in the domain of national strategy. Chaos should change the way we view the full set of human interactions, of which war is only one special part. The international environment is an exquisite example of a chaotic system. An intriguing offshoot of chaos theory—self-organized criticality—is perfectly matched to such an analysis. Bak and Chen define self-organized criticality:

Large interactive systems perpetually organize themselves to a critical state in which a minor event starts a chain reaction that can lead to a catastrophe Although composite systems produce more minor events than catastrophes, chain reactions of all sizes are an integral part of the dynamics Furthermore, composite systems never reach equilibrium but instead evolve from one metastable state to the next.¹⁹

IBM researchers are examining this theory with the use of sand piles: grains of sand are added one by one to a

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pile until a critical state is reached in which the next grain of sand added produces an avalanche. After that catastrophic reordering, the system is relatively stable as it builds toward the next reordering.

Interestingly, a number of metaphors already exist in political science which hint at criticality. The picture of international crises as a tinderbox is the most well-known. In one respect, this metaphor remains particularly accurate: the development and spread of a forest fire is a useful example of a chaotic system and has been modeled by Bak, Chen, and Tang.²⁰ The tinderbox idea, however—an explosive object waiting for a match—falls short in conveying the dynamical nature of world affairs. A newer metaphor is the concept of ripeness, as described by Haass and others. This view of international negotiation holds that some disputes are insoluble for a variety of reasons until the time arrives when those disputes are ripe. The key to successful negotiation, therefore, is exploiting this critical state.²¹

What framework better describes the reordering that is now taking place in the world than self-organized criticality? The plate tectonics metaphor, based on the classical framework, falls short. It postulates basic stability, broken by realignment of a few major forces. The full complexity of the situation is left to the imagination, if any, of the reader. As another example, examine the Soviet Union in the respective lights of the mechanistic framework and criticality theory. The classical framework encourages us to think in simple terms of a clash of forces: populists, Gorbachevian reformers, and conservatives. Self-organized criticality leads us to see a tremendous multiplicity of actors in a critical state that will inevitably progress to a metastable one after a catastrophic reordering.

The former model leads us to overestimate our influence on events and discount the ability of all but the major players to have a decisive impact on events. The paradigms of chaos and criticality, in contrast, highlight the dispropor-

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tionate effects seemingly minor actors can provoke. The German physicist Gerd Eilenberger remarked:

The tiniest deviations at the beginning of a motion can lead to huge differences at later times—in other words, miniscule causes can produce enormous effects after a certain time interval. Of course we know from everyday life that this is *occasionally* the case; the investigation of dynamical systems has shown us that this is *typical* of natural processes.²²

Chaos theory further notes that these deviations are self-organized, that is, they are generated by the dynamical system itself. Even absent external shocks, a sufficiently complex system contains the factors that will propel the system across the boundary of stability and into turbulence and reordering.

Now a troubling question arises: Is chaos theory merely a useful metaphor to describe these interactions, or do these interactions actually follow the occult laws of chaos? This metaphysical puzzler is beyond the scope of this modest paper, but intuition—the conscience of the intellect—suggests that the second explanation is correct.

The originators of the concept indeed foresee application in security affairs: "Throughout history, wars and peaceful interactions might have left the world in a critical state in which conflicts and social unrest spread like avalanches."²³ Consider the example encountered earlier: the end of the Cold War as a shift of plate tectonics. Which framework gives a more accurate basis for strategy? The mechanistic framework seems to say that the plates have now shifted and we are in an indefinite period of stability upon which we can now rebuild a uniquely new world order. Criticality describes a dynamical process, merely metastable, which is even now building toward the next set of catastrophic reorderings.

The mechanistic view is too arbitrary and simple for international affairs. We must have as our starting point the fact that disorder, proceeding to reordering, is an inher-

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ent, inescapable feature of complex, interactive systems. We are deluding ourselves if we choose metaphors which suggest that externally imposed long-term stability can be a defining feature of the world. The world is destined to be chaotic because the multiplicity of human policy actors in the dynamical system have such widely varying goals and values.

The mechanistic paradigm encourages us to seek the causes of major change in external factors. It postulates basic inertia in a system, unless acted upon by some outside force. Criticality, in contrast, is self-organizing. The system proceeds to major change as a result of a small, almost negligible event. World War I is an outstanding example of self-organized criticality. The killing of an arch-duke in an obscure Balkan town triggered a worldwide catastrophe that led to the deaths of 15 million and whose effects are felt even today.

Lebanon may be an example of perpetual criticality. The sad history, explosive geography, lack of cohesion, and wildly high antagonisms of the actors give little hope for stability and predictability. Working within the classical strategic framework, however, the United States entered the fray in 1982 and emplaced Marines to bring balance to the situation and separate opposing forces. As one Marine officer remarked, "We walked a razor's edge."²⁴ The basic assumption was that the United States could be a neutral, stabilizing force. A system in criticality, however, offers no neutral ground. Once in it, you are of it, as we learned after the Lebanon catastrophe.

REORDERING STRATEGIC THOUGHT

Amid the disorder, we are not bereft of strategy. Criticality theory is not a limitation for the strategist but a promising framework which helps explain the fascinating disorder of the world. Once we arrive at an accurate description of our environment, we are in a position to create strategies which

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advance our interests. To create these strategies, we must begin with an examination of the factors which shape criticality. Some possibilities exist:

- initial shape of the metastable system
- underlying structure of the metastable system
- cohesion among the actors
- individual "conflict energy" of the actors.

Taking these factors one by one:

Initial shape means simply that the initial contours of a system influence the system's later development. The post-catastrophic outcome forms the base of subsequent actions. In our sand pile, the post-avalanche slopes and hills influence the shape of the new cone to be formed; in foreign affairs, the changed boundaries after World War II could not help but shape the subsequent course of events.

In sand pile terms, the grains fall into a flat, circular surface: this is the **underlying structure**. The contours of this basic structure help determine the shape of the developing sand pile. In the international sense, underlying structure can be factors such as environment and geography. Kuwait's proximity to Iraq is a fundamental fact that shapes all subsequent policy in that area. Water supply is an example of an environmental underlying factor.

Cohesion determines the rate at which reordering takes place. Wet sand has different dynamics than does dry sand. So, too, do ideologically and ethnically homogeneous systems have different dynamics than are possessed by multiethnic or ideologically conflictive societies. On a military level, deterrence and arms control serve to increase cohesion. It should be noted that increased cohesion does not prevent criticality; it means only that the progression to criticality is slowed.

Finally, I suggest that each actor in politically critical systems possesses **conflict energy**—an autonomous measure of energy which contributes to formation of the critical state. In our international system, this energy derives from the motivations, values, and capabilities of the specific ac-

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tors, whether governments, political or religious movements, or individuals.

Chaos theory dictates that it is very difficult to make long-range predictions. The difficulty increases with the number of actors in the system and the duration of forecast desired. As a starting point, therefore, we should be suspicious of long-term strategic outlooks. This is a hard addiction to abandon. We clutch to ourselves the belief that there are maps that will take us through the dark woods of international affairs. But perhaps a different metaphor will help: we should instead seek to create lanterns to light our way along a path that shifts with the pace and direction of our stride.

Is this argument not contradicted by the success of containment, the *ne plus ultra* of long-term strategic thinking? This policy, with its prescription for "unalterable counterforce at every point where they show signs of encroaching," is the full flowering of the mechanistic world view in national security affairs.²⁵ Conventional wisdom, with the collapse of the Soviet empire, says the policy of containment worked. But looking at the aggregate record, wasn't it this same policy that led us into Vietnam and into self-defeating support of authoritarian regimes from Iran to Nicaragua to the Philippines? We could perhaps have achieved a better end result with less cost if we had moved flexibly from island to island of order within the global sea of political chaos.

Now beyond containment, we are debating the correct concept of polarity—whether the world is multipolar, unipolar, or polypolar, now that it is no longer bipolar. This debate is another example of how we strive to ignore the obvious. Politically, the world has far too many and varied actors to be thought of in polar terms. Yet we seek to strip down complexity till we reach a scale we are accustomed to.

We are desperate in our desire for structure, thus the appeal of the overblown new "orders," whether the new

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world order, strategic consensus, or the League of Nations. Will the new world order mimic the mistakes of containment, forcing us to take unwise policy stands in pursuit of an illusory long-term stability? We may have already sacrificed more than we know in pursuit of this new stability. By conditioning Desert Storm on UN approval, we have constrained our future military options. Much of Congress, the American public, and the international community will expect a UN imprimatur as a legitimizing prerequisite to future US use of force. And what have we actually gained in the desert? The attempt to create the new world order through international legality has left Saddam Hussein firmly entrenched and ever defiant as the decimation of the Kurds proceeds.

Our desire for structure also helps explain the Western thirst for arms control. Even when the arms control regimen is declaratory and has no military utility, as with the 1972 Biologic and Toxic Weapons Convention, we cling to the talismanic belief that the simple, declaratory existence of the treaty will help prevent the horrors it describes. Americans sanctify the arms control process as a good in itself, regardless of the strategic situation or the virtue of the treaties under negotiation.

Effective treaties and compacts can slow the progress of a system toward criticality, but we indulge in illusion if we believe absolute stability is attainable. In international affairs, all stability is metastability. The international environment is a dynamical system composed of actors—nations, religions, political movements, ecologies—which are in themselves dynamical systems. We should therefore be miserly when we incur immediate policy costs to achieve a future stability. Odds are that we will not get what we bargained for. Stability is a consequence, not a goal. Indeed, stability—like presence, nation-building, and even peace—is a goal without context. When such a goal is advanced as a policy objective, it betrays either the inade-

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quacy or the duplicity—recall the Soviet “peace policy”—of the underlying strategy.

How then to use criticality to our advantage? The true aim of national strategy is “shaping the sand pile,” achieving the desired end state with the mildest upheaval. There are times when we will wish to delay formation of a critical state; there are times when we will wish to encourage it and will seek to shape the reordering. As all foreign policy operators know, shaping events is easier dreamed than done. There is not much we can do about initial shape or underlying structure. These are givens formed by history, geography, and environment. Our policy efforts must center on affecting cohesion and conflict energy. Internationally, items such as military alliances, economic interrelationships (e.g., GATT), and agreed rules of the road build cohesion into the system. But the more promising, more neglected way to affect international change lies with the individual.

Conflict energy is at its base a human property, since the individual is the basic building block of the global sand pile. Conflict energy reflects the goals, perceptions, and values of the individual actor—in sum, the ideological software with which each of us is programmed. To change the conflict energy—to lessen it or direct it in ways favorable to our national security goals—we need to change the software. As hackers throughout the world know, the most aggressive way to alter software is with a virus, and what is ideology but another name for human software virus?

With this ideological virus as our weapon, let us move to the ultimate biological warfare and infect the target populations worldwide with the ideologies of democratic pluralism and respect for individual human rights. With a strong American commitment, enhanced by advances in communications and increasing ease of global travel, the virus will be self-replicating and will spread in delightfully chaotic ways. Our national security, therefore, will be best assured if we devote our efforts to winning the minds of

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countries and cultures that are at variance with ours. This is the sole way to build a world order that is lasting and globally beneficial. If we do not achieve this ideological change throughout the world, we will be left with only occasional periods of calm between catastrophic reorderings.

The tangible implication of this analysis is a sharp increase in support for US Information Agency, National Endowment for Democracy, and private sector exchange and educational programs. These programs lie at the heart of an aggressive national security strategy. Conversely, we need to react defensively as well. The true national security battleground is on the level of individual choice, and we are under attack by certain destructive strains, notably drug addiction. What is drug addiction but a destructive behavioral virus, which spreads in epidemic fashion?

THE INTUITIVE CORE

The world is open to experience on many levels, and we would be acting unrealistically if we claimed primacy for any one scientific paradigm over all the others as a foundation of strategic thought. Each framework offers unique insights, and the art of strategy is choosing the most enlightening one for a given situation. Strategy has traditionally been described as the "iron linkage" of ends and means. The complexity of national security today suggests that such an Iron Age has passed, and we must develop a broader definition of strategy: not simply a match of means to ends but a match of paradigm to the particular strategic challenge. It makes little sense to define ends and select our means until we have achieved an accurate representation of the reality we encounter.

If we are open to a variety of scientific frameworks, we can generate more workable principles of strategy than we now possess. On an operational level, we can remember the principles of weapons still to be developed if we under-

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stand the theoretical principles which will give rise to those weapons. On a higher plane, we can understand the factors which dictate that a complex, dynamical system such as the USSR will change, and we can work more precisely to shape the transformation. We can learn to see chaos and reordering as opportunities, and not push for stability as an illusory end in itself. All of this awaits if we can transcend the bonds of the mechanistic framework, which currently dominates strategic thought.

We must, finally, recognize the limits of any framework, even the counterframework of chaos, and pay proper respect to the irrational, the intuitive. Strategic thought rests on scientific paradigms, which in turn rest on mathematics, the language of science. The truths of mathematical systems, therefore, extend into our strategic concepts. One mathematical principle above all is important to us. Godel's Incompleteness Theorem states:

All consistent axiomatic formulations of number theory include undecidable propositions.²⁶

In our world there exists an infinite set of problems which have no logically consistent answer; there are some problems which no framework alone can solve. This theorem marks the limits of robotics in warfare, the limits of operations research, of all scientific inquiry, as applied to warfare, or indeed, to any discipline. We must accept the fact that warfare and strategy, like all undertakings which seek to describe and predict creative behavior, will contain unsolvable paradoxes. Nuclear deterrence may be an example of this. The poignant quotation from the time of Tet—"We had to destroy the village in order to save it"²⁷—may illustrate another.

Therefore, once you have achieved a strategic framework which is logically consistent and which provides a comprehensive, predictive description of war, you can no longer fully trust that framework. In plain talk from Colin

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Powell: "Never let adverse facts stand in the way of a good decision."

Any framework contains limitations which can be transcended only by the peculiar characteristics of human thought that the physicist Roger Penrose refers to as "the instantaneous judgments of inspiration"²⁸ inseparable from human consciousness. What is that after all, but Clausewitz's *coup d'oeil*, those "glimmerings of the inner light which leads to truth."²⁹

Great strokes of strategy draw on this intuitive core. Yet strategists cannot live by inspiration alone. Inspiration unsupported by rigorous analysis becomes adventurism. Thus, intuitive gifts must be paired with an effective theoretical framework. Chaos theory is uniquely suited to provide one such framework, provoke us toward realistic policies in an incessantly changeable age, and inaugurate the long-overdue liberation of strategic thought.

NOTES

1. "Strategic community" denotes that irregular web of academics, consultants, and servants of the taxpayer which suggests governmental responses to problems of tactical, operational, and national strategy, and thus defines our strategic culture.

2. Fritjof Capra, *The Turning Point*, Toronto, Bantam Books, 1983, p. 47.

3. Albert Einstein and Leopold Infeld, *The Evolution of Physics*, New York, Simon and Schuster, 1942, pp. 57-58.

4. US Department of Defense, *1991 National Security Planning Guidance*, Washington, DOD, 1991, p.1. This time-honored metaphor traces back at least to Joseph Nye's use in the 1970s.

5. See among others Morris Janowitz, *The Professional Soldier*, New York, The Free Press, 1971, pp. 22-37.

6. FM 100-5, Washington, Headquarters, Department of the Army, 5 May 1986, p. 2.

7. James Gleick, *Chaos*, New York, Penguin Books, 1987, p. 24.

8. See "Oils for the Friction of War," in Charles M. Westenhoff, ed., *Military Air Power*, Maxwell AFB, Alabama, Air University Press, 1990, pp. 77-79. This section of the book is filled with quotations which track

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precisely with chaos theory. Indeed, one statement (Eilenberger, cited on p.16) is sourced to a physicist researching nonlinear dynamics. The compilers perfectly identify the omnipresence of chaos and nonlinearity in war; all they lack is the vocabulary.

9. Stansfield Turner notes this and poses the question of "why there have been so few prominent strategic thinkers and writers in the past 50 years." Turner, "The Formulation of Military Strategy," in George E. Thibault, ed., *The Art and Practice of Military Strategy*, Washington, National Defense University Press, 1984, p. 15.

10. This paper confines itself to chaos theory as a new basis for strategic thought, yet other sciences may offer equally innovative paradigms for the strategists.

11. "Dynamical," not "dynamic," is the preferred term among researchers. I follow the convention.

12. The patterns exhibit period-doubling and have analogues in fractal geometry. See Gleick, pp. 121-137, 202-207.

13. Walter J. Freeman, "The Physiology of Perception," *Scientific American*, February 1991, pp. 78-85.

14. Trevor Dupuy, *Numbers, Predictions, and War*, Indianapolis, Bobbs-Merrill, 1979, p. 50.

15. J. David Singer and Melvin Small, *The Wages of War 1816-1965: A Statistical Handbook*, New York, John Wiley and Sons, 1972, pp. 215, 375.

16. See William R. Thompson, *On Global War*, Columbia, SC, University of South Carolina Press, 1988.

17. Gleick, pp. 83-87.

18. A perhaps-apocryphal quotation, ascribed to "a German general officer," makes this point: "The reason that the American Army does so well in wartime is that war is chaos, and the American Army practices chaos on a daily basis." Cite unknown, suggestions welcomed.

19. Per Bak and Kan Chen, "Self-Organized Criticality," *Scientific American*, January 1991, p. 46. Metastable = relative, not absolute, stability.

20. Bak and Chen, p. 53.

21. See Richard N. Haass, *Conflicts Unending*, New Haven, Yale University Press, 1990.

22. Westenhoff, p. 78.

23. Bak and Chen, p. 53.

24. Colonel T.J. Geraghty, in Daniel P. Bolger, *Americans at War 1975-1986, An Era of Violent Peace*, Novato, CA, The Presidio Press, 1988, p. 210.

25. The plan of containment was implemented far more rigidly than its architect intended. Kennan, in retrospect, terms his 1947 article a call for ideological-political engagement, and suggests today that we need a

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containment theory "more closely linked to the totality of the problems of Western civilization." Chaos theory to the rescue? See George F. Kennan, "Containment Then and Now," *Foreign Affairs*, Spring 1987.

26. Paraphrased by Douglas R. Hofstadter, *Godel, Escher, Bach: An Eternal Golden Braid*, New York, Vintage Books, 1980, p. 17.

27. See Stanley Karnow, *Vietnam: A History*, New York, Viking Penguin, 1984, p. 534.

28. Roger Penrose, *The Emperor's New Mind*, New York, Penguin Books, 1989, p. 422.

29. Carl von Clausewitz, *On War* (trans: Michael Howard and Peter Paret), Princeton, NJ, Princeton University Press, 1984, Book One, Chapter 3, p. 102.

3

INFORMATION WAR

MARK C. LEWONOWSKI

Victory smiles upon those who anticipate the changes in the character of war, not upon those who wait to adapt themselves after the changes occur.

Air Marshal Giulio Douhet

THE STRUGGLE TO DOMINATE THE INFORMATION SPHERE, THE domain of command, control, communications, and intelligence (C³I) will be the center of gravity of future conflicts between modern forces. This essay is a discussion of these principles of information war in the context of classical strategic theory and the principles of war. An understanding of the principles of information war must confirm the centrality of the information battle in future conflict.

Recent periods in world history have been variously characterized as the industrial age, the electronic age, the nuclear age, etc. We are now in the information age. That title reflects the fact that the dominant technology in the world today is information science, which in turn is based on a body of information theory, and includes technologies of sensor, information-processing, and communication systems.

Throughout human history, nations and military forces whose strategies have recognized and made best use of the current dominant technologies have prevailed in

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conflict. During the Civil War, greater application of industrial technologies in the North gave Federal forces overwhelming advantage over their Confederate enemies. It was not until World War I, however, that the full impact of industrial warfare was made manifest with the introduction of machine guns, tanks, and aircraft on the battlefield in significant numbers. And again American industrial power was decisive.

During World War II, the Allied plan Bodyguard guided a major campaign, an information war, that was a prototype of future conventional warfare. For the first time, as an element of national and military strategy, human and other resources were assembled and put to the task of inventing computers, radar, and other information systems, and then to the task of applying them—plus many, more traditional information weapon systems—in new and imaginative ways to attack and cripple the enemy's C³I system. The target was Hitler's ability to command.

Command is an information function. The modern staff, and the data processing and communication systems on which it relies, performs important value-adding analysis and decision services to aid the commander. The entire C³I system is essential to conducting modern warfare and is, therefore, a critical target to be attacked and a vital resource to be defended.

In World War II, the information battle reached its culminating point in June 1944. As a result of Bodyguard, an active disinformation and operational deception plan, Hitler failed to reinforce his defenses in Normandy because he was denied accurate, precise, and timely information upon which to base his decisions.

Bodyguard was a relatively primitive information campaign conducted by men and women developing doctrine and tactics as they went along. General Norman Schwarzkopf's strategy for Desert Storm, on the other hand, was a very sophisticated application of information-warfare theory and technique. On 17 January 1991, Coalition forces

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opened the battle by blinding the enemy's sensors and degrading his ability to communicate and process data. A deception operation fixed Iraqi forces along the Kuwaiti coast. Coalition forces then moved to the west, knowing the enemy could not observe that movement, and the ground attack proceeded with total security and surprise.

At a micro level, the Coalition employed precision-guided munitions with great effect, munitions critically dependent on accurate, precise, and timely targeting data. Precision-guided munitions allow massing of overwhelming force at a precisely defined point. Their employment in the battle confirmed that the ability to locate a target implies the ability to destroy it.

Desert Storm was a singularly one-sided conflict. The next major war between modern, technologically advanced societies will likely see the application of arrays of sophisticated information systems on both sides in both offensive and defensive postures. Therefore, the principles of information war must be integrated into the body of doctrine underlying United States force development and force employment strategies. The information war will be the center of gravity. It must be the focus of our effort and our energy.

THE OBJECTIVE

Thus, what is of supreme importance in war is to attack the enemy's strategy.

Sun Tzu

The objective of war is to apply overwhelming force against the enemy's ability to wage war, at the same time defend your own, and, thereby, force the enemy to succumb to your will. The Clausewitzian concept of the center of gravity refers to a critical focus of the conflict which is the key to victory or defeat. The side that controls the center of gravity is in an undeniable position, able to apply

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overwhelming force against the enemy. According to Clausewitz, the center of gravity is a product of the dominant characteristics of the two belligerents, a result of the interaction of the principal strengths and the principal weaknesses of each side. Each strength carries within it a weakness, a vulnerability.

In the current era, a major battlefield strength of technologically sophisticated modern forces is the ability to use precision-guided munitions. The weakness or vulnerability that strength carries with it is a critical dependence on being able to acquire accurate, precise, and timely targeting information. In a conflict between two modern forces, the center of gravity will be the information sphere each struggles to dominate. In a conflict between two less well matched forces, the center of gravity may lie elsewhere, but it will still be bounded by the intersection of the dominant characteristics of the belligerents.¹

The problem in war is twofold: (1) to correctly identify the center of gravity and (2) to identify operational objectives, clearly defined and attainable, which, when achieved, give us control of the center of gravity and permit us to destroy the enemy's will and ability to resist. Information warfare applies in two ways. If an operational objective is destruction of a finite entity, then the problem becomes locating that target with accuracy and precision in space and time, so that a weapon can be brought to bear to destroy it. The second application of information war follows necessarily from the first. In order to destroy an enemy's ability to resist, it is sufficient that he be denied targeting information of the requisite accuracy, precision, and timeliness, thereby preventing him from engaging targets with his weapons.

While the foregoing statement may appear to be obvious, in fact it has been only in recent years that sensor, communication, and information-processing technologies have matured to the point that virtually the whole of the earth's land surface, the surrounding seas, and the air and

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space above are at least potentially subject to continuous, detailed surveillance. That degree of surveillance does not occur today because the sensors and their support systems, including the humans who attend them, are too expensive, because the quantity of data so produced would be overwhelming, and because it simply is not necessary. But large portions of the earth, sea, and sky are under nearly continuous observation (with the remainder subject to observation as required), and potential targets are monitored, with very accurate and precise data being collected on their locations and movements.

Not only does the technology now make targeting information available to a degree never before possible, but the weapons are now available to make use of the information. Accurate, precise, and timely information is the *sine qua non* of precision-guided munitions. Whether the targeting sensor and precision-guidance mechanism are integral parts of the weapon, are carried on the delivery platform, or operate from a third vehicle or location, the result is the same. Anything that can be located in time and space can be targeted and destroyed, and the only limitations on locating the target are the expense, effort, and time the attacker can accept in solving the problem.²

Given the required information, a decision may be made not to attack a target directly for policy reasons. For example, if the operational objective is destruction of a charismatic dictator, and if he is known to be in a survivable underground bunker, well supplied with life-support essentials and well defended, the only feasible direct attack against him may require the use of nuclear weapons. If the national command authority does not authorize the use of nuclear weapons, then an indirect attack will be necessary.

However, if the enemy knows you have the capability to destroy him, and if he also believes you have the requisite will, he may be deterred from opposing you. Deterrence becomes a near certainty if the enemy believes he lacks a countervailing capability. If he chooses to fight, the

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engagement may be prosecuted to a successful conclusion if he lacks either material capability or necessary and sufficient targeting information.

In the case of Desert Storm, destroying the Iraqi information collection and distribution system made possible destruction of their material means of war without significant opposition. Lacking an information system, the Iraqi forces were unable to defend themselves. Exactly why Saddam Hussein was not deterred from resistance can only be the subject of conjecture.

THE OFFENSIVE

The experts in defense conceal themselves as under the ninefold earth; those skilled in attack move as from above the ninefold heavens. Thus they are capable both of protecting themselves and of gaining a complete victory.

Sun Tzu

Intelligence

Offensive capability in information warfare is intelligence. Military intelligence has two roles: to identify and assess the threat and to make target nominations. These two roles comprise an iterative process; repeating step one post-strike yields revised threat assessments which, in turn, yield new target nominations, and so on.³

Identifying and Assessing the Threat

Identifying the threat is a process of collecting and analyzing information. In the beginning, at some notional time zero, sensors start collecting data about the world. Once collected, the data must be converted to a form compatible with follow-on analytical processes. That conversion may be as simple as developing and printing a photograph, or as involved as resolving an electromagnetic signal into a series of characters, breaking a high-grade cipher system,

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and then translating the result into English. At this point the information can be analyzed in the context of any available historical data bases plus contemporaneous information from other sources to yield characterizations about objects and events observed. The first questions to be answered will be what is it, where is it, and when was it there?

It is easy to oversimplify the collection process. Successive iterations of employing sensors require an assessment of what additional data is required and where and how it might be found so that appropriate sensors can be brought to bear. The product continuously feeds back into the collection management system, where it is subjected to an analytical process to guide the collection of further data.

Threat assessment has two component parts: (1) determining or estimating the enemy's material capability to wage war and (2) determining or estimating the enemy's intent to employ that capacity against you or your interests.

Again, estimating enemy capabilities can be as simple as counting tanks in a marshalling yard, or as challenging as assessing characteristics of a developmental weapon system from partial intercepts of telemetry. Both current situational data from one or many sources and historical data must be considered when arriving at conclusions.

Material capability is not measured in numbers of weapons alone, their deployment status, or the like. The critical question is what force the enemy can bring to bear within a specified time frame. To answer that question, numbers, locations, and physical characteristics of weapons, training and readiness of enemy personnel, and the information capability that quickens the opposing force must all be considered. That is, can the enemy command and control his forces? Can he target you?

In the information war, intelligence attacks against the enemy's information system takes on special meaning and significance. All intelligence disciplines have roles to play, but signals intelligence (SIGINT) is the most immediately

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relevant because of its timeliness and generally inherent accuracy and reliability, and because the unique insight it gives into the enemy's C³I system essentially turns his own information system into a weapon of self-destruction.

Compared to measuring material capability, assessing enemy intent approaches a black art, requiring nearly clairvoyant insight into the personality and mental processes of the enemy commander. Artificial intelligence techniques of expert systems and pattern recognition may have application to this ancient problem and offer the prospect of developing into devastating new weapons of the information war.⁴ Using such techniques, it may be possible to build a machine analog of an opposing commander that could be used to test for reactions to various courses of action.

Making Target Nominations

In order to make target nominations, two things are necessary: First, the potential target must be identified, and it must be located in space and time. Second, the potential target must be assessed according to two measures of merit: the degree of threat it poses to friendly forces and capabilities (negative value), and the utility in terms of achieving operational and strategic objectives of attacking the target (positive value).

The targeting process is completed with an assessment of vulnerability to specific weapons and the feasibility of attack. Here one crosses the line from intelligence to operational planning. As suggested earlier, with the current state of information technology, if a target can be located with sufficient accuracy and precision in space and time, a weapon can be brought to bear to destroy that target. There remains only the policy decision of whether or not to do so.

Protecting Your Own

Given an understanding of the offense in the information war, it becomes possible to develop a defense. There are two essential steps in an offensive information war. The

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first step is data collection, which can be defeated by counter-sensor strategies. The second step is a series of analytical processes. Strategies to attack the analytical processes are also possible. In order to target the enemy, it is necessary to complete both steps. In order to prevent successful targeting by the enemy, it is sufficient to defeat either of the two steps.

Stealth is a passive counter-sensor strategy and consists of dramatically reducing observable features of the potential target, typically a combat vehicle. Observable features are those which emit or reflect energy detectable by human senses or machine sensors. The primitive ambusher might be considered the original stealth warrior.⁵ The advent of stealth as an adjunct of modern warfare technique and technology, since it is specifically a technique of information warfare, is giving rise to whole new categories of doctrine and tactics that are significantly changing combat operations. Not least among those innovations is the realization that target survivability can be increased by signature reduction as well as by hardening. Communicating, traditionally considered essential for command and control, may gain greater tactical significance as a source of targeting data by revealing the location of the communicators.⁶

Active Counter-Sensor Strategies. The enemy's ability to target can be physically destroyed ("hard kill"), or it can be degraded to the point of ineffectiveness by jamming, that is by overwhelming it with spurious data to the point that the system cannot locate targets with sufficient accuracy and precision ("soft kill"). Destroying or jamming communications links between sensors and the command and control nodes they support is a simple logical extension of these active counter-sensor strategies.

Deception is both a counter-sensor strategy and an attack against the analytical process which is integral to the C³I system. It applies at all levels of conflict from national (strategic) through small-unit (tactical). It is a direct attack

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on the enemy with the objective of forcing upon him false data which will lead him to incorrect conclusions and bad decisions. A deception campaign will have three components:⁷

(1) Concealment. Do not allow the enemy to locate, identify, and assess your capabilities, vulnerabilities, and intentions. Again, concealment may call for either active or passive measures, or both.

(2) Deception proper. Mislead the enemy about those capabilities and vulnerabilities he does observe, and about your intentions for the future. It is a cardinal principle of deception that the deceiver succeeds by reinforcing the enemy's already formed misconceptions.⁸

(3) Misdirection. Direct enemy attention to misleading or irrelevant data. A diversion succeeds by drawing attention away from the main effort, though perhaps for only a short time. An example follows:

At the successful culmination of Bodyguard in June 1944, the German ability to collect information had been severely degraded, allowing the Allies to conceal their capabilities and intentions. At the same time, false, deceptive and misleading information was introduced into the German C³I system. Hitler was deceived into holding his 15th Army in reserve at the Pas de Calais, targeted against the notional First US Army Group, instead of employing that army to oppose the Allied landings at Normandy. At the moment General Marshall and the other chiefs of staff learned of Hitler's decision, they knew ultimate victory was certain.⁹

Attacking the Analytical Process

Beyond denying or degrading current situational data by attacking sensors, the analytical capability can be attacked in two ways.

One possible mode of attack is to inject a virus into the computers performing automated analytical tasks, or degrade their performance by bombarding them with electro-

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magnetic radiation. Attacks against human logical processes are possible by adding stress through increasing physical danger, hardship, deprivation, and isolation; increasing operational tempo to reduce decision time; etc. A bad decision is not necessarily an "intelligence failure." Information may be disregarded by the decision-maker, or his reasoning process may be faulty. Faulty reasoning may be induced as described.¹⁰

Mobility is a special case of increasing operational tempo. Mobility confers security on a potential target by shortening the time between establishing the target's location in space at a particular point in time and required arrival time of the weapon. That is, the more mobile the target in terms of its speed and agility, the shorter the time and distance by which we may "lead" the target. (The concepts of mobility and "leading" the target are discussed more fully in the MANEUVER section.)

The second possible attack on analytical capability requires a long-term effort to deny the enemy an accurate knowledge base of your capabilities, operational habits, and doctrine. Lacking an accurate knowledge base, the enemy will misread current situational data and, consequently, will make bad decisions. For example, Rommel, commanding the Atlantic Wall, believed the weather on 6 June 1944 would prevent an Allied amphibious operation, and so he went on leave back to Germany. In fact the Allies had superior weather information, allowing them to plan the attack for 6 June, because German weather data collection capabilities had been destroyed. Further, Rommel believed Allied forces would not attempt an amphibious operation if the waves in the English Channel were over six feet; in fact the Allies did not adhere to that doctrine on D-Day.

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MASS AND ECONOMY OF FORCE

If I am able to determine the enemy's disposition while at the same time I conceal my own, then I can concentrate and he must divide. And if I concentrate while he divides, I can use my entire strength to attack a fraction of his.

Sun Tzu

Information warfare is not confined to a traditional battlefield, even including the above- and below-surface extensions of the battlefield exploited by modern weapons. Identifying and understanding the Clausewitzian center of gravity requires an assessment of "the dominant characteristics of both belligerents. Out of these characteristics a certain center of gravity develops, the hub of all power and movement, on which everything depends."¹¹ From comprehension of the center of gravity, employment strategies can be developed which, in turn, lead to operational objectives. The accurate, precise, and timely identification of a critical threat or, reciprocally, a critical target on the enemy's side can be extremely difficult, but it is an information function at the heart of information warfare. Only after such an identification has been made can superior combat power be applied at the point of decision.

As weapons become smaller and fewer, the requirement for accurate, precise, and timely targeting data becomes greater. The weapons are smaller, but they deliver more force to a more precisely defined point than ever before. The GAU-8 30mm cannon carried on the A-10 attack fighter destroys a modern tank with a slug of depleted uranium approximately one inch in diameter and about four inches in length. A similar slug of depleted uranium, protected against the friction and heat of reentry, dropped from earth-orbit altitude would carry sufficient energy to penetrate the most hardened nuclear missile silo. The critical problems to be solved are locating the target and then guiding the weapon to that target. If the target is

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mobile, the problem is more complex, but not different in any essential way. Depleted uranium is the material of choice, of course, because of its mass density. As a weapon it approaches a theoretically ultimate expression of the principle of mass.

The reciprocal of the principle of mass—economy of force—requires that threats and potential targets be accurately assessed to ensure that scarce combat resources are not wastefully expended against enemy deceptions or in other, secondary, efforts. Again, the responsibility lies with the information system. Even worse than suboptimally expending weapons in secondary efforts is wasting them blindly with no clearly defined or located target.

MANEUVER

And as water has no constant form, there are in war no constant conditions. Thus, one able to gain the victory by modifying his tactics in accordance with the enemy situation may be said to be divine.

Sun Tzu

In traditional analysis, maneuver includes the interrelated dimensions of flexibility in thought, plans, and operations, and the mobility necessary to mass combat power at the point of decision.¹² In terms of information warfare, flexibility of thought and action translates to rapidity of decisionmaking and action in the face of new and changing data.

The target must be located in both time and space. Time is a vector quantity,¹³ and the target's location in space must be expected to change over time. The relevant time period over which accurate predictions of spatial location must be made is the time required to make a decision to engage the target plus the time required for the weapon to close on the target. Security for the target equates to a

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degree of mobility, speed, and agility that takes it beyond the radius of the weapon effect faster than the enemy can react. For example, at one extreme, a duck hunter leads his target by feet and fractions of a second. At the opposite extreme, the United States maintains constant surveillance and intelligence collection efforts against the Soviet Union while strategic forces are kept on alert. We "lead the target" by time equal to the time required to transmit data from strategic sensors to the national command authority (NCA), plus NCA decision time, plus time required to launch weapons, plus flight time of the weapons to their targets.

The acknowledged strengths of air power—speed, range, flexibility, precision, and lethality—reflect its ability to react rapidly to targeting data that may be valid for only a short period of time. That is, a fast-moving airborne weapons platform can strike a maneuvering target if the target's location is known or can be predicted (extrapolated) within acceptable limits of accuracy and precision over the time required for the aircraft to bring its weapons within range and launch them. That time becomes shorter as the distance to be covered lessens, and the requirement for prediction lessens as the time decreases. Thus, an aircraft orbiting over the battlefield has greater utility against a target of opportunity than one back at home base, and forward deployed forces in general have less stringent target-information requirements than those in rear-area garrisons.

The acknowledged value and importance of air power in modern warfare comes from the ability of the crew of a manned aircraft to collect, process, and exploit targeting information in real time and to deliver large weapon loads rapidly with relative precision and accuracy. Over the past 75 years aircraft have come to dominate the battlefield because of these characteristics, and their strengths have been enhanced as information technology has improved. As information technology continues to mature, however,

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we may find other ways to acquire targets and deliver weapons quickly to them. One possibility among many might be a cruise missile with a conventional warhead guided to its target by a spaceborne sensor and the Global Positioning System (GPS/NavStar). Or consider as a solution to the infantry's requirement for close air support, a soldier providing targeting information to a cruise missile through a combination of laser target-designator and GPS/NavStar precise-location information. Real time or near real time information processing remains the critical element and may or may not involve a human in the loop at an unspecified location.

The debate over the militarization of space is fatuous. The presence in earth orbit of such information systems as intelligence sensors, communications satellites, and GPS/NavStar has effectively militarized the region. The only issue is whether destructive weapons will be placed in orbit also to permit more rapid reaction to volatile targeting data on a terrestrial, airborne, or space-based threat. The stated US goal of an ASAT capability, not necessarily in space, is a recognition of the information warfare capabilities of spaceborne systems.

UNITY OF COMMAND

Generally, management of many is the same as management of few. It is a matter of organization. And to control many is the same as to control few. This is a matter of formations and signals. Thus the valiant shall not advance alone, nor shall the coward flee.

Sun Tzu

Alexander to Napoleon

Command is an information function. The quantity of data available and the speed of information transfer have increased exponentially over the course of human history,

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but the basic information-processing device employed by military commanders has not changed since the days of Alexander the Great. That device is the human brain. Over the course of history, commanders have developed a variety of techniques to assist them with their information-processing requirements. The first major advance since Alexander came in the 18th century with the development of the military staff. Napoleon Bonaparte was the first to command a multi-corps army in the field through a general staff headed by a chief of staff. Napoleon's staff received reports from counterpart elements on the staffs of his subordinate field marshals and issued instructions in his name. All quite routine in today's vast military bureaucracies, in 1800 the idea of a staff was revolutionary. And it was key to Napoleon's success.¹⁴

The headquarters staff developed to take the communications and data-handling load off the commander. The 18th century commander, however, did all his own intelligence analysis and operations planning; he had a staff, not the modern staff method.

The Modern Staff Method

Reduced to simplest terms, a staff is an information-processing device. Properly conceived and implemented, the modern staff method further relieves the commander of information-processing duties by having the staff subject incoming information to a value-adding analytical and parsing process. Decisions which can be made at levels below the commander are, in fact, made for him so that he has more time for analysis and decision making that only he can perform. The distinction of what is or is not within the purview of the staff is ultimately decided by the commander on the basis of his ability to "program" the staff to act as he would in its place, that is, the degree to which he can predict the nature of the problems it will have to solve and the degree to which he can make his intent known in advance.

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Trust in subordinates derives from experience which tells the commander that through whatever process and mechanism, the staff is appropriately "programmed." The value added to information is measured in terms of utility of the staff product to the commander. That utility is measured in terms of timeliness and how readily the information can be accepted and used by the commander's decisionmaking process. When the information is presented to the commander, he makes a decision which gives rise to orders to subordinate elements. That decision and the ensuing orders in turn become new information subjected to yet another value-additive, analysis-decision process as that information is transmitted to the executing units.

Communications

The key and indispensable requirement for command is communications. Modern military forces are driven to seek security in dispersion and mobility: "The price or cost is the need of capabilities for fusing, integrating, coordinating and ensuring the consistency of decisions and information across such geographically and logically dispersed entities as data bases, sensors, management levels, organizations and knowledge domains."¹⁵

The negative aspect of communications is twofold. First, the communication system or its output signals may be observable, and either feature may identify to the enemy a critical node in a C³I network or an otherwise stealthy weapon, platform, or operator. Second, it puts the information at risk at the same time it is gaining value through increased utility. That is, while the information is in motion it can be intercepted and exploited, or it can be degraded or destroyed by electronic combat techniques. For example, at the time of the Normandy invasion, the Allied command ordered French resistance forces to destroy telephone exchanges used by German command authorities. The immediate result was only a temporary

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disruption to German command and control; they quickly reverted to radio communications. That change, however, made German command information available for intercept by the Allies. Since the Allies, unknown to the Germans, had broken the highest level German operational cipher system through the ULTRA program, what at first appeared to be a harassing action by resistance forces became an important attack on the enemy's information system.

Unity of Command

Unity of command means that an entire organization is guided by the intent of a single commander. This unity ensures that all elements of the organization have the benefit of all information and information-processing capability available to the commander without having to duplicate either the information or the processing capability at all echelons. The implied requirement is that the commander have reliable and secure communications to transmit his intent and orders, the product of his information system, to subordinate elements. Equally, the subordinates must be able to use the commander's intent as a guiding model or framework within which to develop courses of action based on new or unexpected information arising from a changing tactical situation.

In the United States military, the tactical employment of forces is generally led by captains, majors, and lieutenant colonels. These leaders at the squadron-battalion level are absolutely dependent on targeting and other intelligence from higher echelon analytical centers.¹⁶ Modern telecommunication and microcomputer technologies make possible distributed information processing which reduces dependence on a centralized capability. These technologies support "low-abstraction" tasks well; the technologies are less useful in situations calling for nonroutine, innovative problem solving.¹⁷ Mission planning is one such nonroutine situation. The Chief of Staff of the Air Force has pro-

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posed an innovative organization for air forces, a composite wing structure similar to the Navy's carrier air wing, to bring together the people who need face-to-face communication for nonstandard information exchange.¹⁸ Less critical, readily formatted communication is left to electronic means. The critical elements requiring personal interaction are intelligence and operational planning.

The commander's intent and orders, therefore, are his most important product, embodying as they do the sum of his understanding of the center of gravity, his knowledge of the enemy and the situation, his designation of critical targets, and his predictions about future tactical situations. All of these are essential to the operation of modern forces, and the value of information-based processes explains why a C³I system is a critical target to be attacked, and a vital resource to be defended.

SECURITY AND SURPRISE

If plans relating to secret operations are prematurely divulged, the agent and all those to whom he spoke of them shall be put to death.

Sun Tzu

If the enemy cannot gain accurate, precise, and timely information about an adversary, upon which to base his plans and with which to target his weapons, he will have been denied the ability to wage war. That is the definition of security, and is the Clausewitzian definition of victory.¹⁹

Surprise, the reciprocal of security, is the result of victory of your information system over that of the enemy's. The requirements for surprise are that you be able to target the enemy at a time and place and in a manner that he does not expect. That is, you have capability that he has not discerned and intent he has not discovered, while at the same time your intelligence capability has identified

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and located a lucrative target that is within your capability to strike.

While you are denying the enemy the ability to target you, if you still can target him, your advantage is absolute and undeniable. This condition is precisely what the Coalition commander achieved in Desert Storm. It is also the same logic which makes the Strategic Defense Initiatives seem so very threatening to the Soviet leadership, though in this case denial of targeting ability becomes a factor in the endgame rather than at the opening.

SIMPLICITY

The state of crisis is the real war.

Carl von Clausewitz

Crisis is defined by time-constrained high-stakes competitive information-processing and decision-making. Typically, time is short, the amount of information to be communicated and analyzed is large, and the attendant stress tends to degrade human logical processes. At such times the degree to which the problem can be simplified, that is the degree to which the analytical requirement can be reduced, equates to a material advantage in the competition.

In war, the decision will be reached through combat. There is no more stressful human condition. Time for thought and analytical capability is at a minimum. Unity of effort and coherent implementation of the commander's plan and intent are critical. Since it is said no plan survives contact with the enemy, engaged forces will have to improvise on the theme of the commander's intent. Under such conditions, there is a premium on simplicity to reduce the analytical and decision-making workload.

Simplicity is relative to the availability of information-processing capability. There is a temptation to advocate

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widespread use of artificial intelligence devices to augment the tactical commander, and certainly such devices will have a place on tomorrow's battlefield. However, care is essential to ensure that tomorrow's leader is not overly dependent on such aids, or upon any single source of information, lest he be completely disabled by their failure at a critical moment.

SOME IMPLICATIONS

Carl von Clausewitz would not have liked this essay. For him intelligence was part of the fog and friction of war.²⁰ Surprise was important but overrated, deception and cunning were all too often employed at the expense of more essential qualities of character, and an indirect attack on the enemy (that is, anything other than "direct annihilation of the enemy's forces") was an undesirable distraction from what should be the "dominant consideration."²¹ But even Clausewitz recognized that changes in technology and technique would bring about changes in strategy,²² and that has been the thesis of this essay.

At this writing, the Soviet Union is the only country which can still seriously challenge the United States in the strategic military arena. That challenge is serious only because of the Soviet strategic nuclear missile arsenal, weapons of mass destruction whose targets have long been known and precisely and accurately located. The Soviet base of information technology and industry cannot compete with that of the United States. The performance of Soviet weapons against US weapons—most recently in Desert Storm, but also in other conflicts—confirms that. It may be too late to try to hide certain fixed strategic targets within the United States, but in any conflict short of nuclear war (and perhaps even then) the superiority of US information warfare capability should prove decisive.

Clearly, the ideas discussed in this essay have greater application to conventional rather than strategic nuclear

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war. General Schwartzkopf's discussion of his campaign plan carried on CNN on 27 February 1991 was as concise and articulate a description of the current state of information war as could be wished for.

Other analysts have noted and commented on the emerging dominance of information technologies in war, with the added observation that the chief potential rival to the United States in this arena is not the Soviet Union, but Japan. Michael Nacht has said that the sinews of military power are the technologies that are Japan's strength: electronics, sensors, etc. While Japanese industry has the capacity to challenge the US, it currently lags in types and quality of military technology where the US holds an important lead.²³ Japan produces 52 percent of the world's semiconductors, and 21 major US weapon systems contain semiconductors produced only by overseas manufacturers.²⁴ Japan is not going to become a major military power in the near future, but she clearly has the industrial base to do so at some time, just as her industry is the base of potentially far-reaching economic strategies. The United States can develop a fully self-sufficient defense industry only by first developing a self-sufficient electronics industry.

In the 17th and 18th centuries, the dominant considerations in warfare were the reciprocal concepts of position (especially of fixed fortifications) and maneuver. Battles in that era often consisted of a series of maneuvers, sometimes lasting for several days, leading to a final position in which the outcome of the armed engagement was inescapably determined. Under such conditions, the battle was often not taken to completion, and surrender was offered on the basis of victory or defeat in the position contest alone.²⁵

Clearly, we have not yet reached an equivalent level of recognition of the importance of the information battle in modern conflict, nor are we likely to. It is difficult to imagine that a national government still possessing weapons—

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albeit apparently useless—will surrender without having actually experienced the futility of resistance. Deciding when continued resistance constitutes a last desperate bid for glory and when it is futile sacrifice requires a wisdom not shaped by “an airy formula.”²⁶

The struggle in the information sphere as described in this essay may not achieve the decision alone, but it will be decisive. A fundamental policy prescription is, therefore, in order.

The principles of information war must see specific application in United States force-development strategies, and they must be integrated into the body of doctrine underlying our force-employment strategies. To date there have been no deliberate, comprehensive studies of information-support structures of military forces with the intent of identifying all the critical vulnerabilities they contain. Nor has there been a comprehensive effort to develop weapons and tactics to attack (or defend) those vital structures beyond the lowest echelons of tactical sensors and communications.²⁷ Simply pursuing as an article of faith the high-technology solution in weapons research, development, and procurement will not be sufficient. Nor, in combat, is it sufficient to target the enemy's C³I system as a secondary effort to destroying his armed forces. Information war will be central to future conflicts; it will be the center of gravity. Therefore, it demands our attention, our energy, and our best intellectual effort.

NOTES

1. Clausewitz's concept of the center of gravity is generally misunderstood to be a critical target or operational objective. In fact, Clausewitz specifically identifies the critical target and operational objective to be the enemy's ability to wage war. The center of gravity is the focus of the conflict; it is itself a great battle, a struggle for dominance in a critical arena (Carl von Clausewitz, *On War*, ed. and trans. by Michael Howard and Peter Paret, Princeton, Princeton University Press, 1976).

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2. Precision-guided munitions are the extreme case that dramatically demonstrates the relationship between targeting information and weapon. In fact, all weapon systems require targeting information of some degree of accuracy, precision, and timeliness. The difference is one only of degree. The opposite extreme to the precision-guided weapon might be a nuclear device detonated in an air burst to achieve an area effect.

3. In this essay the term "intelligence" is used to describe a process of gathering information, processing and analyzing that information to reach certain conclusions about hostile or potentially hostile elements in the world, and then making recommendations about attacking or defending against those elements.

4. An expert system is a computer program with a knowledge base of expertise capable of reasoning at the level of an expert human in some given knowledge domain. Expertise is proficiency, the skill and knowledge humans use to perform tasks and solve problems. Expertise typically involves combining information with heuristic rules, rare facts, metaknowledge and metacognition, and compiled forms of behavior that yield skilled performance (Raoul Smith, *The Facts on File Dictionary of Artificial Intelligence*, New York, Facts on File, 1989, p. 65). Pattern recognition systems automate a class of perceptual and cognitive processes, including: processing raw data to derive patterns; determining if those patterns exhibit distinct characteristics for categorization and, if so, what categories those are; and assigning the pattern to a defined category (L. N. Kanal and G. R. Dattatreya, "Pattern Recognition," in *Encyclopedia of Artificial Intelligence*, p. 720).

5. Captain James Patton, USN (Ret), "Some Operational Implications of Stealth Warfare, *Naval War College Review*, Winter 1990, p. 67.

6. *Ibid.*, pp. 70-71.

7. Eliot A. Cohen and John Gooch, *Military Misfortunes*, New York, The Free Press, 1990, p. 117.

8. *Ibid.*, p. 118.

9. Anthony Cave Brown, *Bodyguard of Lies*, New York, Harper & Row, 1975, p. 687.

10. Ole R. Holsti, *Crisis, Escalation, War*, Montreal, McGill-Queens University Press, 1972, pp. 199-200, 206-7.

11. Clausewitz, pp. 595-6.

12. Headquarters, Department of the Army, *FM 100-5: Operations*, 5 May 1986, p. 175.

13. A vector is a quantity of a type that might be represented by a directed line segment having magnitude and direction. In time, magnitude is expressed in units of seconds, minutes, hours, days etc. Direction of movement is indicated by what Steven Hawking calls "time arrows" (Steven W. Hawking, *A Brief History of Time*, New York, Bantam Books,

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1988, pp. 143-54). Of particular interest here is the thermodynamic arrow of time, which points in the direction of increasing entropy. Entropy is a measure of the disorder of the universe. It is also a measure of information content such that increasing entropy equates to increasing information content. In this context, information can be defined as the unpredictable elements of a signal.

14. Martin van Creveld, *Command in War*, Cambridge, MA, Harvard University Press, 1985, pp. 58-102.

15. Rear Admiral Albert J. Baciocco, Jr., USN, "Artificial Intelligence and C³I," in *Applications in Artificial Intelligence*, Stephen J. Androile, ed., Princeton, 1985, p. 498.

16. The range of information services routinely provided by "higher headquarters" is immense, including such essentials as air space management, deconfliction of maneuver and indirect fires, frequency management, etc. In the specific realm of intelligence analysis and fusion, it is a fact of life that these centers are most often found at flag-officer-level headquarters, far from the executing forces.

17. Alvin Toffler, *The Third Wave*, New York, William Morrow and Company, Inc., 1980, pp. 213-216. Toffler's example of "low-abstraction" tasks include "entering data, typing, retrieving, totaling columns of figures . . . and the like" (p. 213). This list of tasks describes much of what happens in the principal intelligence agencies and major headquarters of modern defense establishments.

18. General Merrill A. McPeak, USAF, "For the Composite Wing," *Airpower Journal*, Fall 1990, pp. 4-12.

19. Clausewitz, p. 90.

20. Clausewitz, pp. 117-18. "This difficulty of accurate recognition constitutes one of the most serious sources of friction in war, by making things appear entirely different from what one had expected" (emphasis in the original). Exactly. Intelligence has matured to a high art only in the 20th century, and the high technology which serves that art has become available only in recent years. Clausewitz was correct for his time, and the "difficulty of accurate recognition" remains, but our ability to solve that difficulty far exceeds anything the old master could have imagined.

21. *Ibid.*, pp. 198, 202-3, 228.

22. *Ibid.*, p. 226.

23. Michael Nacht, Dean of the School of Public Affairs, University of Maryland. Dr. Nacht was speaking at the National Defense University symposium on Pacific security affairs in Honolulu on 2 March 1991. Cited by permission.

24. Wendy Hanamura reporting on "Monitor Radio," the broadcast service of the *Christian Science Monitor*, 6 March 1991. Ms Hanamura

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cites as examples the MIA1 tank, and the Tomahawk and Patriot missiles.

25. John Childs, *Armies and Warfare in Europe 1648-1789*, New York, Holmes and Meier Publishers, 1982, pp. 101-5. "Destruction of the opposing army was not a general's main goal, rather he was under orders to maneuver for particular areas and strong-points in an effort to seize them for political ends" (p. 104). See also Clausewitz, pp. 258-62. "Recent history has scattered such nonsense to the winds" (p. 259).

26. Bernard Brodie, "A Guide to the Reading of *On War*," in Clausewitz, *On War*, p. 692.

27. There is a notable exception in the area of communications intelligence (COMINT) and its counterpart, communications security (COMSEC). Successes in these fields only suggest what might be possible with a more comprehensive and aggressive approach to the many aspects of the information war.

BLUEPRINT FOR VICTORY

LEADERSHIP STRATEGY FOR COALITION WARFARE

JERRY D. MORELOCK

HAILED AS "THE MOST SUCCESSFUL COMMANDER OF ALLIED forces in the history of war,"¹ General of the Army Dwight D. Eisenhower led a coalition of the forces of many nations to overwhelming victory in mankind's greatest war.

In so doing, he created the model of a leadership strategy necessary to develop, sustain, and successfully execute the most difficult and challenging type of warfare that exists. Although sometimes criticized as being a "chairman of the board" who ruled primarily by compromise, Eisenhower, nevertheless, achieved a stature as a coalition commander without equal—the epitome of "the new leadership" needed for post-World War II America's expanded "new role in world history."²

Today, the post-Cold War world looks again to America to provide a "new leadership" for the world's "new order". In an international environment no longer dominated by superpower confrontation across the plains of northern Europe, the importance of regional coalitions

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emphasizes a need for a leadership strategy which can be effective in an allied command. Collective security agreements, whether long-standing and formal or short-term and expedient, must be led by commanders who have grasped the essence of leadership in coalition warfare as did Eisenhower in World War II.

The purpose of this essay is to examine the development, characteristics, and influence of Eisenhower's leadership in the coalition warfare he directed in Europe from 1942 to 1945. America's most successful practitioner of allied war³ can help us prepare for its recurrence by suggesting how to develop a strategy for coalition leadership which gives future allied commanders a proven blueprint for battlefield victory.

Education of a Coalition Warrior

Dwight David Eisenhower's path to Supreme Allied Commander began in Denison, Texas on 14 October 1890.⁴ The third of what would eventually be six Eisenhower boys, "Ike" spent all but the first two of his boyhood years in Abilene, Kansas.⁵ His family was of modest means, and the chance for a college education appeared none too promising for young Ike. However, a family friend suggested he try for admission to one of the service academies. He passed the competitive exam and, on 14 June 1911, 21-year-old Cadet D.D. Eisenhower joined the Class of 1915 at the Military Academy.⁶

Eisenhower's cadet career was somewhat less than brilliant. If Robert E. Lee had amazed his classmates in 1829 by receiving no demerits in his four years as a cadet, Ike must have amazed his classmates by his ability to collect demerits by the dozens. Yet he performed adequately in academics and was a star on the gridiron until a knee injury ended his football career. Cadet Eisenhower became extremely popular with his classmates, and was well-liked for his easy smile and good nature.⁷ Ike stood 61st among

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the 164 members of the Class of 1915 who graduated that June, and was commissioned in the Infantry branch.⁸

Lieutenant Eisenhower's first assignment took him to Fort Sam Houston, Texas for duty with the 19th Infantry Regiment. He missed out on chasing Pancho Villa with General Pershing's Mexican Punitive Expedition in 1916. Instead, he stayed in San Antonio and trained Illinois National Guardsmen.⁹ Ike was given several different assignments over the next two years, but none got him what he really wanted—overseas combat duty in World War I. In 1918, nearly a year after the US had declared war on Germany, Captain Eisenhower was assigned to organize and train the 301st Tank Battalion at Camp Meade, Maryland.¹⁰ He naturally thought this was an opportunity to get into the fighting.

During those weeks in the spring of 1918, Captain Eisenhower trained his tank battalion for combat, demonstrating to his superiors a remarkable talent for organization and administration. His ability to organize was so impressive, however, that it caused his commander to pull him out of his unit just as it shipped overseas. In what Ike described as "a black mood," he assumed command of Camp Colt, near Gettysburg, Pennsylvania, and began to train the Army's Tank Corps.¹¹ Although he received two more promotions before the Armistice was signed, Lieutenant Colonel Eisenhower spent the remainder of the fighting war training tankers. After 11 November 1918, he also had the rather melancholy duty of supervising the demobilization of Camp Colt and the dismantling of the Tank Corps. But above all, he regretted that he had missed out on combat. Ike's West Point classmate, Omar Bradley, spoke for all who had missed out on combat when he wrote:

The war to end all wars was over. I was glad the carnage had stopped, but I was now absolutely convinced that, having missed the war, I was professionally ruined. I could only

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look forward to a career lifetime of dull routine assignments and would be lucky to retire after thirty years as a lieutenant colonel.¹²

Eisenhower's biographer, Stephen Ambrose, reports that Ike was "deflated and depressed" and could "hardly believe it had happened to him."¹³ This lack of combat experience would continue to embarrass Eisenhower, especially when his British subordinates brought up the subject later during his World War II command. Nevertheless, Ike's wartime service had some advantages which would help prepare him to excel as a coalition commander. Among these were: experience in organizing and training units for war, early appreciation of tanks and the mobility of armored warfare, extensive work with civilians and soldier-civilians, and avoidance of a "Passchendaele" (trench warfare) mentality which characterized the over-cautious attitude of some British commanders in World War II. Although he feared his career as a professional soldier had been ruined, Eisenhower had been better served by his non-combat duty than he then suspected.¹⁴

By the summer of 1920, the US Army had shrunk from a wartime high of nearly four million men to a pitiful remnant of barely 150,000, and the nation once again retreated into isolationism.¹⁵ When the Senate rejected the Wilsonian "Peace of Versailles," it effectively abdicated any position of world leadership for the United States. Secure behind ocean boundaries and smug in its isolationist attitude, America was content to become a second-rate military power consumed only with economic self-interest. Soldiers like Eisenhower pondered their futures in such an environment, and wondered if a military career was worth the sacrifices they all knew were necessary. Eisenhower decided to remain in the Army—probably for no more profound a reason than that he genuinely enjoyed being a soldier.¹⁶

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In July 1920, Lieutenant Colonel Eisenhower became, once again, Captain Eisenhower, as he and his contemporaries reverted to their permanent ranks. However, within a few days, Ike regained the rank of major—a rank he would hold for the next 16 years.¹⁷ At about the same time, he took a seemingly innocent action which nearly ended his career. Major Eisenhower published an article in the *Infantry Journal* about the role of tanks in future warfare.¹⁸

Among its other provisions, the National Defense Act of 1920 firmly planted the US Army's tanks (and, of course, armored warfare doctrine) in the Infantry branch. Tanks and armor tactics languished among the footsoldiers until Marshall rescued them in 1940 and created a separate Armored Force. When Major Eisenhower published his article, however, Infantry branch tank doctrine was characterized by a trench warfare mentality which couldn't envision the mobile, flexible sweep of modern armored forces and combined arms battle. Ike's article challenged that mentality by suggesting that the tank was "a weapon that could change completely the strategy and tactics of land warfare."¹⁹ Championing ideas similar to those of Britons J.F.C. Fuller and B.H. Liddell Hart, Eisenhower was perceptive and forward-thinking.²⁰ The Chief of Infantry branch, however, was not amused.

The Chiefs of the various branches held positions of considerable power between the world wars before Marshall "did away" with their jobs as part of his massive reorganization of the Army on the eve of World War II. Before 1940, the Branch Chiefs substantially controlled the assignments of the officers in their branches and, so, their careers.²¹ For straying from the "party line" in his tank article, Ike was summoned before the Chief of Infantry and told that his ideas "were not only wrong, but dangerous and that henceforth [he] would keep them to himself." A chastened Major Eisenhower wrote that, "Particularly, I was not to publish anything incompatible with solid infantry doctrine. If I did, I would be hauled before a court-mar-

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tial.”²² This attitude hardly stimulated an atmosphere of enlightened debate or intelligent discussion of strategy and tactics. The warning was intended, of course, to create just the opposite climate, and to produce a lock-step mentality of rigid compliance. Ike complied.

Despite Eisenhower’s obedience to higher authority (an obedience which would characterize most of his active service), the whole incident negatively impacted his relations with Infantry branch. Throughout the next several years, Ike was continually turned down by his branch for choice assignments (such as the Infantry School) and for further military schooling (primarily the Command and Staff School).²³ Instead, he shuffled from post to post and was usually coerced into coaching the unit football team. General Fox Conner rescued Ike from oblivion, becoming the younger officer’s mentor and guiding influence. Conner was, Eisenhower asserted, “the ablest man I ever knew.”²⁴

Conner expanded Ike’s intellect by forcing him to read and study military history, and by coaching him in command and staff duties. When he thought his pupil was sufficiently prepared, Conner secured Eisenhower a place in the Command and Staff School class of 1925-26—on an Adjutant General Branch quota. Infantry branch continued to hinder Ike’s career, and the Chief of Infantry’s aide warned him, “you will probably fail.” In June 1926, Eisenhower graduated first in his Leavenworth class.²⁵

Over the next several years, Eisenhower held a variety of jobs ranging from one with the American Battle Monuments Commission (a “writing” assignment under General Pershing) to another with the office of the Assistant Secretary of War (planning the industrial mobilization for a war nobody thought would ever come). Along the way, he completed the War College and met George C. Marshall.²⁶

Marshall, whose impact on the Army in the years leading to World War II is legend, was quietly compiling a list of bright, capable, energetic officers whom he would

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later use to staff the War Department and rebuild the American military machine. Becoming known to Marshall was sufficient to ensure an officer's rapid rise—provided the officer had *favorably* impressed him.²⁷ Eisenhower's demonstrated ability to organize, write, administer, and, above all, produce results, favorably impressed the future Chief of Staff. In 1930, Eisenhower met and also impressed another general who would further his career—Douglas MacArthur. Ambrose recounts why both men admired and respected Ike:

Eisenhower did his work brilliantly. It was always done on time. He loyally supported his chief's decisions. He adjusted himself to his chief's time schedules and to other whims. He was able to think from the point of view of his chief, a quality that both MacArthur and Marshall often singled out for praise. He had an instinctive sense of when to make a decision himself, when to pass it up to the boss. MacArthur said of Eisenhower in a fitness report in the early 1930s, "This is the best officer in the Army. When the next war comes, he should go right to the top." In 1942 Marshall showed that he agreed with that assessment by implementing the recommendation.²⁸

Eisenhower worked under General MacArthur for seven years, first in Washington, then for the last four years in the Philippines. Although much has been made of the difficulties of serving under the ambitious and egotistical general, Ike learned and benefitted from the experience—from both the negative and positive aspects of MacArthur's behavior.²⁹

While Eisenhower's professional education profited from observing MacArthur's considerable intellect in action, Eisenhower also saw how involvement in partisan politics could be dangerous for a soldier. Frequent confrontations with the President, the 1932 smashing of the Bonus Marchers' camp near the Capitol, and continual flirting with extremist politics were all examples of the negative

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manifestations of MacArthur's flamboyant style. They reinforced Eisenhower's natural tendency to shun the political aspects of soldiering whenever possible.³⁰

Later, when some of his actions as coalition commander were criticized as politically naive, Ike would justify them by claiming that "military necessity" outweighed all political considerations—as if war and politics could be neatly separated.³¹ He feared, it seems, to be perceived as resembling his politically manipulative boss of the 1930s.

Major Eisenhower spent four years with MacArthur trying to build an independent Filipino Army. It proved frustrating work, with little personal satisfaction for Ike.³² Despite the difficulties of the job, however, the experience added to his preparation for allied leadership in ways he didn't realize at the time.

Eisenhower learned to work as harmoniously as possible with an ally whose culture and background were completely different from his. This forced him to appreciate the impact of issues from his opposite number's position, not merely his own. The Philippine tour also gave Eisenhower daily lessons in the value—even necessity—of compromise. To succeed, Ike constantly juggled the demands of his egotistical boss, the Filipino government, an unsympathetic American army, and his own sense of what was required. Compromises were inevitable and frequent.

Another important lesson this job taught was how to accomplish extensive missions with limited resources. There was never enough men, equipment, or especially money to do it right. Eisenhower learned to adjust his aims to the resources available, to be opportunistic and flexible, and to do what was affordable when he couldn't do what seemed necessary.

Finally, despite his aversion to "politics," Ike was required to operate in the political, as well as the military, sphere in this assignment. His extensive duties—and MacArthur's preference to remain majestically aloof—caused Ike to meet, almost daily, with Filipino President Quezon.

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In fact, Quezon gave him an office adjoining his own in Malacanan Palace to facilitate close coordination and enhance working relations. Eisenhower may have tried later to avoid the political side of military service, but he indulged in the practical application of it during his four years under MacArthur in the Philippines.³³ All of these lessons enhanced his leadership.

Lieutenant Colonel Eisenhower (he regained his World War I rank in July 1936) escaped from MacArthur and the Philippines in December 1939, shortly after Hitler's panzers and stukas shattered the Polish Army, forcing the start of World War II. Ike was glad to get back to the US Army. He sensed that the war would eventually involve America—and he didn't want to miss out this time.³⁴

For the next two years, Eisenhower held several different posts in the expanding American Army. At Fort Lewis, Washington, he served with the 15th Infantry Regiment as Regimental Executive Officer and as Battalion Commander for the 3rd Battalion. Ike worked hard to prepare the unit for combat should America enter the war, but reported, "I'm having the time of my life."³⁵ His reputation as a tireless and efficient organizer who got results continued to grow, and he soon moved up to Chief of Staff of the 3rd Infantry Division, the next higher headquarters.

In March 1941, Eisenhower passed two milestones—he became the IX Corps Chief of Staff, and he was promoted to full Colonel. By June, Colonel Eisenhower had become the Third Army Chief of Staff under General Walter Kreuger at Fort Sam Houston, Texas. According to Ambrose, Kreuger had requested Ike because he wanted an officer "possessing broad vision, progressive ideas, a thorough grasp of the magnitude of the problems involved in handling an army, and lots of initiative and resourcefulness."³⁶ Significantly, General Marshall personally approved the selection of Colonel Eisenhower. Ike's rapid rise was about to accelerate.

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The Louisiana Maneuvers of 1941 confirmed Eisenhower's superior abilities to General Marshall. The Third Army's "victory" in the first large-scale maneuvers for the US Army since World War I were attributed to Ike's tireless work as Kreuger's Chief of Staff. In recognition of this, Eisenhower, on Kreuger's recommendation, received the single star of a Brigadier General in September 1941.³⁷ More importantly, his star continued to rise with General Marshall who had marked him for greater responsibility. Brigadier General Eisenhower got the call to report to Marshall for duty on the War Department Staff on 12 December 1941. It was the most important call of his entire career.³⁸

Eisenhower assumed his duties in the War Plans Division on 14 December 1941. This was his first opportunity to work where Marshall could observe him on a daily basis, and he made the most of it. By February 1942, Marshall had made Ike the head of War Plans Division. The next month, Eisenhower became the first War Department Chief of Operations, in a general reorganization of the staff.³⁹ Soon after, on Marshall's recommendation, Eisenhower received his second star. Ambrose relates some reasons why the Marshall-Eisenhower relationship thrived:

The two men, although ten years apart in age, had much in common. Marshall . . . had been a football player in college. He was a great fan of Fox Conner and a student of military history. Like Eisenhower, he loved exploring the Civil War battlefields and habitually illustrated his points or strengthened his arguments by drawing on examples from past battles and campaigns. The way he exercised leadership coincided nicely with Eisenhower's temperament. He never yelled, never shouted, almost never lost his temper. He built an atmosphere of friendly cooperation and teamwork around him, without losing the distinction between the commander and his staff.⁴⁰

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Marshall carefully selected his principal subordinates for their proven ability to exercise certain traits and characteristics in their work. He sought independent thinkers with a positive attitude who weren't afraid to make a decision. He avoided self-promoting careerists who were content to continually "pass the buck" on every action while they hogged the limelight. Marshall, whose own equanimity was frequently mistaken for detached coldness, rejected the shouter and table-pounder, preferring instead a leader who commanded respect by force of character. "Eisenhower," wrote Ambrose, "was exactly the sort of officer Marshall was looking for."⁴¹

Eisenhower completed his apprenticeship for coalition command under Marshall's able tutelage during the hectic, early months of American involvement in the war. Ike especially impressed his chief with his ability to "rise above national rivalries" and work amicably and closely with their new British ally. Starting at the Arcadia Conference and continuing through many US-UK meetings, Ike stood out as a "fair-minded" partner.⁴²

Allied Commander in Chief—Making a Coalition Work

When Marshall sent Major General Eisenhower to Britain to observe and report on the massive build-up for the eventual attack on Nazi Germany, he was taking the first step toward placing Ike in command of all the Allied forces in the European Theater of Operations. Ike's uncommonly good judgment, quick assessment of the situation, and natural ability to win the friendship and confidence of his British counterparts convinced Marshall that Ike was the perfect choice to lead the American effort.

Upon his return from Britain, Eisenhower set to work drafting the operating directive for the Commander, European Theater of Operations, US Army (ETOUSA). This document spelled out broad goals and objectives as well as warfighting policy for the senior American commander in the theater. In the document, Ike wrote, "Absolute unity of

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command should be exercised by the Theater Commander, who should organize, train, and command the American ground, naval, and air forces assigned to the theater."⁴³ Three days after Marshall received the document, he appointed Eisenhower ETOUSA Commander to execute it. Although Marshall probably arrived at the decision to pick Ike independently, he received support for his choice from senior British officials (including Churchill and Lord Louis Mountbatten) and Americans (Air Corps Commander Hap Arnold and Army General Mark Clark). The British, especially, were "impressed by his dedication to the Alliance."⁴⁴

In July 1942, less than a month after arriving in England, Eisenhower got a third star with his promotion to lieutenant general. He continued the build-up of US forces in Britain throughout the next few months and increased his popularity with Allied leaders.

While it was widely assumed that Eisenhower would eventually hand over field command to Marshall, that issue was by no means settled. With responsibilities for the global war causing Marshall to become increasingly tied to his Washington "command post" in the War Department, it became less likely that the Chief of Staff would usurp Ike as overall commander in Europe. When the Allied coalition decided to strike back at Germany in North Africa, thereby deferring the cross-channel invasion until 1944, it effectively settled the coalition field command question in Ike's favor. Lieutenant General Eisenhower, the American commander already in theater overseeing the build-up, was selected to lead Operation Torch—the Allied invasion of North Africa.⁴⁵

Ike set out immediately to create an integrated, Anglo-American headquarters to coordinate and control Torch. Principal staff sections (G-1 through G-4) were set up with American chiefs and British deputies, or vice-versa. Eisenhower's Allied Force Headquarters (AFHQ) "thus became a balanced collection of British and American officers working closely together to achieve the common aims of the

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alliance."⁴⁶ Ike tolerated no outward manifestations of national jealousy or parochial pettiness. Instead, he worked hard to create "a close-knit organization where differences . . . were insignificant ones."⁴⁷

Although Marshall and Eisenhower were disappointed that the Allies were taking the offensive in North Africa instead of attacking across the Channel, the decision seems a fortunate one. Torch allowed Ike to learn his trade as a coalition commander in an environment where his mistakes would not prove fatal to the alliance or the Allied cause. North Africa became a proving ground for Eisenhower—a laboratory in the conduct of coalition warfare, which permitted him to sharpen his skills as an allied leader in preparation for greater challenges to follow. Always a quick study, Ike learned several valuable lessons in the sand and rock of North Africa. His first lesson, however, was very nearly his last, for it occurred in the highly sensitive (and public) area of politics.

The Allied landings began on 8 November 1942 and proceeded well despite some resistance by French colonial forces. The resistance was not extensive, but it was annoying and threatened to delay a rapid Allied move eastward to Tunisia. Allied intent was to trap Rommel and the remainder of the Axis forces between Eisenhower's command and the British Eighth Army under Montgomery, now moving west after defeating Rommel at El Alamein. Ike needed to take some action to stop French resistance and persuade its men to fight on the Allied side. Since French Admiral Darlan, Vichy-leader Petain's deputy, was in North Africa, Eisenhower offered him a deal.⁴⁸

Darlan agreed to order French troops to support the Allies in exchange for his assuming civil power there. When Ike's deal became known, it set off a storm of protest. Darlan, a fascist and "eager collaborator with the Nazis," seemed an odious, albeit expedient, ally. It appeared that Eisenhower was making deals with the enemy. Despite widespread adverse reaction in Britain and America,

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Roosevelt and Churchill backed Ike and refused to censure him for what some referred to as his political naivete. Eisenhower, in characteristic fashion, excused himself by taking two actions—he assumed complete responsibility for the “deal,” and he justified it on the grounds of “military necessity.”⁴⁹ This would not be the last time he embraced both of these concepts.

While the Darlan controversy subsided, Eisenhower turned his attention to the immediate problem of fighting a coalition war in the Tunisian desert. At a desert chokepoint called Kasserine Pass, he learned several hard lessons about the difficulties of leading allied forces in battle. Ike’s teacher this time was Feldmarschal Erwin Rommel.⁵⁰

The conditions which led to the debacle at Kasserine Pass in Eisenhower’s first battle as a coalition commander seem obvious in retrospect. The Tunisian front was hundreds of miles from Ike’s headquarters in Algiers. He exercised command through a confusing and convoluted system in which no one seemed certain about whom they worked for. Supply lines were woefully overextended and intertwined among nationalities and services. The resulting “teeth” that could be supported by this tenuous logistical “tail” mustered insufficient combat power to smash German-Italian resistance. Perhaps most telling, the commander of US troops, Major General Lloyd Fredendall, was not up to the task.⁵¹

Fredendall had been Marshall’s pick to command the II US Corps in the North Africa campaign, and he had performed adequately in the landings at Oran and the limited fighting which followed. Eisenhower, however, did not know Fredendall personally and was unsure of how he would react in combat against stiffer (read “German”) resistance.

Ike soon heard unsettling reports of Fredendall’s openly anti-British attitude, as well as evidence of a rather bizarre command style. Fredendall quickly alienated Ike’s British overall ground commander, General Kenneth An-

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derson, and the two men barely spoke—yet Anderson was Fredendall's immediate boss! Worse, Fredendall despised and distrusted his own principal subordinate, 1st Armored Division commander Major General Orlando Ward. The American corps commander habitually gave orders directly to Ward's subordinates and continually meddled in details at the division, brigade, and even battalion level. If that wasn't bad enough, Fredendall insisted on remaining far from the front at his command post—a heavily fortified bunker chiseled into a remote mountainside. The corps commander seldom left this location and therefore knew little of fast-breaking events at the front.⁵²

Fredendall made a real disaster seem likely. The battle-wise Rommel made it inevitable.

The German attack smacked into Fredendall's troops on Valentine's Day 1943 and drove them back in disorder. The inexperience of American troops and Fredendall's incompetence made the Battle of Kasserine Pass a disaster for Ike, but Rommel withdrew after settling for a clear, unambiguous tactical victory.⁵³

This defeat, though far from fatal to the alliance, was a serious blow to American prestige and to Eisenhower's reputation. Nevertheless, he retained the confidence of Marshall and Allied political leadership and survived. Ike emerged from the ordeal a better leader for the experience—and also with the fourth star of a full general.⁵⁴

In addition to the obvious lessons on supply, organization, and command structure, he had learned hard lessons on the value of aggressiveness and team play in his first test as a coalition commander. Fredendall's poor performance demonstrated to Eisenhower that, although pre-war "friendship counted for much," it must not interfere with the relief of any officer who proved indecisive or a failure.⁵⁵ It also showed Ike that senior leadership must act aggressively in the forward theater during the critical phase of any operation and not be wedded to a command post far to the rear. Later, during Eisenhower's tenure a perceived

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lack of aggressiveness or a tendency for a commander to spend too much time in the rear was justification for relief.⁵⁶

Finally, the hapless Fredendall provided Ike with a stark example of the consequences of violating the first rule of coalition warfare—cooperation and team play with one's coalition partners. Fredendall was despised by his British and French counterparts for his outspokenly anti-Allied attitude. Ike could not tolerate such an attitude and learned to place a high value on officers who earned and maintained the respect of their allied counterparts.⁵⁷ General Eisenhower emerged from the crucible of desert fighting with valuable experience in coalition war and increased confidence in himself.

This newly won self-confidence helped Ike to be more assertive with his British allies and to make constructive changes in his headquarters' conduct for the remainder of the North African campaign. With the offensive-minded Patton now commanding II Corps in place of Fredendall, and the capable British General Alexander directing the ground fighting, the Allies eliminated all Axis forces from the region by mid-May 1943, capturing an astounding 250,000 prisoners in the process.⁵⁸ Significantly, Ike's newly improved self-confidence allowed him to countermand Alexander's proposal to turn the final victory into an all British show by pinching American forces out of the line. Ike insisted that US and French troops participate in the final coalition victory, because he correctly judged it must be seen that they "won as Allies," not as one partner alone. When a British politician congratulated him on "his" victory, Ike flashed his famous smile and said, "Ours, you mean, ours."⁵⁹

Eisenhower's next challenge as coalition commander was the Allied invasion and capture of Sicily in July and August 1943. Despite Marshall's (and Ike's) preference for moving forward with Overlord (the cross-channel attack in France), the focus of Allied action remained in the Mediter-

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anean—a result of pressure from Churchill and the British service chiefs. This was just as well, because it gave Eisenhower and his American troops another chance to gain combat experience and confidence in their abilities. It also bought more time for the Overlord buildup to proceed.

During the Sicilian campaign, Ike's duties as Commander of Allied Forces in the Mediterranean were primarily in the diplomatic, strategic, and administrative realms, although he managed to keep an eye on battlefield developments. He took little part in the actual running of the campaign, leaving the details to his able subordinates. Like cream rising to the top, Ike's British and American lieutenants were now some of the best commanders of the war and battle-proven. They included Britons Alexander, Montgomery, Cunningham, and Tedder and Americans Patton and Bradley.⁶⁰ At the successful completion of the Sicilian campaign, Eisenhower's coalition had a first-class team that had learned to work well together (although in the privacy of their diaries, some confided a startling degree of personal animosity toward one or more of the others). But clearly, the driving force behind the coalition was Eisenhower.

Forrest Pogue, official historian of the Supreme Command, wrote that the quality most often stressed about Ike was "the ability to get people of different nationalities and viewpoints to work together," and that "after a year of working with Allied forces in the Mediterranean area, he had demonstrated his knack for making a coalition work."⁶¹

In 1944, Ike brought this reputation for demanding harmony and cooperation to Britain as he prepared to lead the greatest invasion force ever assembled in the cross-channel attack on continental Europe. President Roosevelt, impressed with Ike's reputation and proven ability to fight a successful coalition war, and professing that he would be "unable to sleep" with Marshall out of the country, had selected Eisenhower as Supreme Commander, Allied Expe-

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ditionary Force.⁶² Ike's task directive from the Combined Chiefs of Staff read, "You will enter the continent of Europe, and, in conjunction with the other United Nations, undertake operations aimed at the heart of Germany and the destruction of her armed forces."⁶³

Supreme Allied Commander—Applying the Lessons

Despite the inevitable complications (among them a shortage of landing craft and unfavorable weather patterns), Eisenhower's invasion force began landing troops on the continent of Europe on 6 June 1944. Establishing and expanding the Normandy lodgment was a logistical undertaking without precedent, designed to create an unassailable base to support the subsequent campaigns across France and Germany.⁶⁴ By D-Day plus 13, the Allies had put ashore 630,000 troops, 95,000 vehicles, and 220,000 tons of supplies.⁶⁵ Over the next several weeks the beachhead was expanded and secured, and, although German resistance became strong, the Allied armies broke out of Normandy at the end of July. Pogue described why Eisenhower's invasion succeeded:

The combined Allied command had worked smoothly to bring the full force of naval, air, and ground power to bear on the enemy. The Germans from almost the first blow had been off balance . . . For this failure there are many explanations. Most striking perhaps was the German lack of the sort of unified command which the Allies had in SHAEF.⁶⁶

The "unified command" was mainly Eisenhower's personal creation.

The story of the subsequent successful campaigns across France and the drive into the heart of Germany over the next 10 months is a familiar one which hardly bears repeating here. However, the conduct of that coalition war provided challenges to Eisenhower's leadership of a "unified command" which can be examined for further insight into the challenges of allied warfare. Ike had learned

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through practice and experience how to exercise command of this coalition. He would get the chance to apply those lessons in the campaigns of France and Germany.

The first challenge to Ike's coalition leadership (and one which would linger through nearly the entire campaign) was the question of an overall ground commander. Field Marshal Bernard Law Montgomery, whose diminutive size concealed one of the war's largest egos, wanted the overall ground command of Allied forces. He held this position, in fact, for the invasion force and gave it up only reluctantly in September when Ike himself incorporated the ground commander duties into the responsibilities of the Supreme Commander. Nevertheless, Montgomery continued to pester him about assuming overall control of the ground war at every opportunity.⁶⁷

Eisenhower resisted "Monty's" proposal for several reasons. First among these, it appears, was his disapproval of Montgomery's "single thrust" strategy. Monty reasoned that, given about 40 Allied divisions, he could strike rapidly across the northern sector, quickly capture Berlin, and end the war. Ike disagreed, worried about logistics, a long, exposed flank, and the German ability to mass against a single thrust. He preferred to pressure the outnumbered Germans all along their line in a "broad front" strategy, although he assured Montgomery his would be the main attack of the Allied effort.⁶⁸

Ike's wartime Chief of Staff, Lieutenant General Walter Bedell Smith, claims his boss's strategy of advancing into Germany along several axes and double enveloping the Ruhr area (Germany's industrial heartland) was the agreed upon plan well before the invasion. Smith cites Ike's determination to stick by his plan despite pressure from Churchill and others as one of his greatest strengths, one which should receive more credit for the decisive defeat of the enemy.⁶⁹ Once again, Eisenhower's judgment that it should be an *Allied* victory is important. It seemed to Ike that Monty was placing his personal aggrandizement

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before the best interests of the coalition. When Monty returned to this theme after the Ardennes Offensive, Ike prepared a "him or me" message to the Combined Chiefs of Staff.⁷⁰ Montgomery, who realized that Eisenhower, not he, would be the one to stay, finally shut up, relegating his sniping about the subject to his post-war memoirs.

Ironically, Montgomery was the principal figure in another challenge to Ike's coalition leadership. But this time putting the best interests of the coalition ahead of national pride resulted in Ike's giving Montgomery an expanded command and increased responsibility. The catalyst was the unexpected German Ardennes Offensive—Hitler's last desperate gamble to split the coalition opposing him in the West. When German panzers and grenadiers crashed into the weakest section of the Allied line on 16 December 1944, they quickly separated Bradley's Ninth and First US Armies from the Third Army farther south. Although Bradley maintained telephonic contact with his two armies to the north of the "Bulge," he was unable to control the fighting in person. Eisenhower realized this and appreciated the necessity to place these two American armies under Montgomery's command.⁷¹ Bradley was devastated, his pride hurt and his confidence shaken.⁷²

Despite Ike's close personal friendship with Bradley and despite the bruised American egos, he knew that giving Montgomery command of US forces in the north was the right thing to do to save the Allied cause. He made the decision quickly and without hesitation. Unquestionably, it seems he was correct. British historian Chester Wilmot, not noted for being pro-American, wrote about this decision, "In all his career as Supreme Commander there was perhaps no other time when Eisenhower revealed so clearly the greatness of his qualities."⁷³ Above everything else, Wilmot was, in effect, praising Eisenhower's considerable skill at successfully leading a coalition.

The coalition's junior partner, France, also provided Ike with several challenges to his allied leadership. The

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TORCH operation earlier, the liberation of Paris, and numerous incidents related to wounded Gallic pride—all tried the Supreme Commander's patience and tested his skills as a diplomat as well as a commander. But none of these incidents was as potentially serious as the Strasbourg affair.

During the Battle of the Bulge, when Eisenhower was diverting as much combat power as possible to the Ardennes to stop the German attack, he directed General Jake Devers, the 6th Army Group commander on the Allied south flank, to withdraw to a more defensible line further to the west. Unfortunately, this would mean the evacuation of the recently liberated Alsatian town of Strasbourg.⁷⁴ DeGaulle, having established himself as France's new leader, was furious that French soil would be yielded. He threatened to remove all French forces from the Allied coalition. He even suggested that the Allied supply lines running through France would no longer be safe. Ike had to give in and let the fiery Frenchman have his way. Once again, however, his motivation was for the best interests of the alliance. Although he hated to give in to deGaulle's threats, he swallowed his pride and, according to Churchill, did "the wise and proper thing."⁷⁵

Perhaps the clearest demonstration of Eisenhower's successful application of leadership in coalition warfare, however, is his overall direction of the campaign from Normandy to the Elbe. By taking this larger view of the European fighting, by rising above the relatively petty questions of the correctness of this or that tactical decision, Ike demonstrated his masterful leadership of the Allied forces.⁷⁶ It shows in both the political and the military aspects of coalition war.

Politically, Eisenhower had to deal with the combined effects of two nearly completely different styles in his American and British bosses. Roosevelt, probably an extreme example of the "American system," gave both Marshall and Eisenhower little political guidance concerning

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the running of the war. The President had little interest in the day-to-day operations of the coalition, and scarcely provided enough information to allow the two soldiers to plan grand strategy. Churchill, on the other hand, was constantly meddling in Ike's business, and frequently overloaded the Supreme Commander with both political and military advice. Although such control down to the lowest level was perfectly consistent with the British system, it often appeared to Ike to be little more than nagging.⁷⁷

The result of these two conflicting styles was to cause Eisenhower to demonstrate a high degree of both initiative and assertiveness. In the absence of clear, detailed instructions from his own government, he used initiative to develop politico-military goals for SHAEF, while asserting his independence from Churchill's constant interference. Although Ike accepted the Prime Minister's advice on many occasions, he never allowed himself to be browbeaten or bullied by the persuasive British politician. Churchill, to his credit, remained a staunch supporter of Eisenhower throughout the war—even when the Supreme Commander rejected his advice. In the end, it was undoubtedly their mutual respect and trust which made this possible.⁷⁸

Militarily, Eisenhower showed his skill as a coalition leader through the campaigns in France and Germany. Despite post-war criticism of his conduct concerning the military aspect of the war (from both sides of the Atlantic), he seems to have been right more often than wrong. Indeed, Ike's military judgment concerning the Normandy invasion, the pursuit to the Rhine, the "broad front" strategy, and countering the Ardennes attack appears in retrospect to have been much keener than the judgment of his critics.⁷⁹

To cite only one example, in the case of the Ardennes offensive, he was the first senior commander to recognize the attack for what it was, and he acted decisively on the very first day of the attack to begin moving the necessary combat power to the area to defeat the Germans. And as

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already pointed out, he rose above the petty level of national pride and jealousy to give Montgomery sole command of American units in the northern sector for the overall good of the alliance.

Historian Martin Blumenson has assessed Ike's military prowess and concluded: "America's greatest field commander in World War II, Eisenhower represented more than anyone else the new leadership and the new American role in the world history. His achievement was great. His military stature assured."⁸⁰

Eisenhower, when thrust onto the world stage in an unprecedented position, made a complex coalition work effectively. His leadership in coalition warfare is a masterful application of command in a difficult, demanding role. He had led "the greatest allied army in history" and won, according to General Marshall, "the greatest victory in the history of warfare." Overcoming "every conceivable difficulty incident to varied national interests and international political problems of unprecedented complications,"⁸¹ Eisenhower had triumphed. But this victory, thanks mainly to Ike's coalition leadership, had been, above all, an *allied* one.

"A Usable Past"—A Strategy for Future Coalition War

It is always somewhat dangerous to ascribe too much authority to the "lessons of history" or to attempt to create from past events rigid patterns for future actions. History, of course, can never actually repeat itself. But to ignore completely what has gone before in the mistaken belief that nothing can be learned from the hard-won experiences of others is a worse conceit. Eisenhower's leadership of his World War II coalition can provide some valuable lessons on allied warfare if we choose to study it.

Probably the most important lesson to be learned from Ike's experience is that, since coalitions are formed of independent members who have freely joined together for a common purpose, the leadership of that coalition must be

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handled with tact, understanding, and respect for each member.⁸² Eisenhower's uncompromising fairness in all of his command decisions assured each of the coalition partners that none of them would be overpowered by the wishes of the "senior partner." By scrupulously avoiding favoring one nation over another and strictly adhering to the common objectives of the allied cause, Ike was able to build confidence in his judgment and fairness which manifested itself as "a degree of closeness and maturity in political and military matters never before attained" in such a coalition.⁸³ He was seen, in short, as an *allied* leader, not an *American* one.

A key aspect of Eisenhower's ability to operate in a truly "allied" manner was his creation of an integrated headquarters and staff. Beginning with AFHQ in the Mediterranean and continuing with SHAEF in France and Germany, Ike created an allied team composed of officers of the different nationalities who were completely comfortable in issuing orders to subordinate commands of any allied nation. Those found to overly favor one "national" point of view over the good of the coalition were moved out. Without hesitation, Ike fired staff officers of several nations for failing to exhibit the necessary spirit of cooperation.⁸⁴

In future coalition wars, this type of integrated headquarters may not always be possible. It's already present in NATO, a long-term, formal coalition, but was apparently unnecessary given the ad hoc nature and limited length of Desert Shield/Storm in 1990-91. Considering Eisenhower's success with such an organization in World War II, it would seem a valuable and desirable tool for building cohesion and cooperation if the situation warrants. Planners for any future coalition war should at least consider the appropriateness of applying an integrated AFHQ/SHAEF model.

Another aspect of Ike's successful coalition leadership would not have been possible without the climate of trust

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and confidence created by his "allied" approach, i.e., his assertiveness and firm personal control of the military alliance. He may have been criticized by lesser men as being merely a "chairman of the board," but such criticism confuses his congenial style with its often ruthless effect. In fact, when faced with tough decisions he did not shrink from making them—and he always, publicly, accepted full responsibility for the consequences of his decisions.

Of course, as an alliance commander he sought the advice and opinions of his partners. Ike wanted as complete a picture of the situation, and his options, as he could get. But he made up his own mind, then forcefully and clearly issued his orders.⁸⁵ Thanks largely to his dedication to unity and cohesion, his orders were faithfully carried out, even by allies who may not have completely agreed with those orders.

To lead effectively, therefore, a coalition commander must not only be given the authority to command, but must be willing to exercise such a mandate fully and decisively. The timid bureaucrat who avoids making a decision cannot be tolerated.

Eisenhower's leadership could not have been as effective as it was if his military and political superiors had not firmly supported him. Roosevelt, Churchill, Marshall, and even (if somewhat grudgingly) Alan Brooke stood behind Ike and provided credibility and legitimacy to his coalition command. They underwrote his early failures and later controversies, and allowed him to learn from his mistakes. His American bosses, for the most part, permitted Eisenhower to conduct the Supreme Command as he wished, then backed him up when the consequences materialized. Ike's wartime mentor and chief benefactor, Marshall, never presumed to issue orders to his protege, but provided unflagging support throughout his stewardship. The Combined Chiefs of Staff gave Ike and the SHAEF staff a broad mission statement with very little detailed guidance; they

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provided firm support, however, for Eisenhower's leadership in the field.⁸⁶

The lesson here is that, regardless of how competent a coalition commander is, he will be ineffective unless fully backed up by his political and military superiors.

An important lesson which should also be drawn from Eisenhower's World War II experience is that good coalition leadership is made, not born. When Ike assumed allied command in the Mediterranean area in 1942, he was ill-prepared to accomplish all the things he was to achieve in 1944. He learned how to be a coalition commander through practical experience in the deserts of North Africa and the hills of Sicily. Education and training, even for general officers, must continue throughout an officer's career. To assume that, once a general's stars are pinned on, one's military education and leadership preparation are complete is a futile idea which risks potential disaster on the battlefield. Meaningful training and reflection on the lessons of practical experience (for all ranks) must not only be continued, they must be actively encouraged.

A scholar once wrote that history provides "a usable past" which, if properly understood, can teach lessons.⁸⁷ If so, then perhaps those who must plan for, initiate, and carry out coalition war—the most difficult form of warfare to wage—can learn from the experiences of America's most successful practitioner of it. General of the Army Dwight D. Eisenhower's leadership in World War II, exercised through an unprecedented coalition, had a decisive impact on the successful conduct of the war in the European Theater of Operations.

This brief examination of the development, characteristics, influence, and implications of Ike's coalition leadership suggests that this "usable past" can give us a blueprint to help prepare tomorrow's coalition commanders for future victory. The realities of the post-Cold War world are emphasizing the importance of coalition warfare in promoting and protecting the national interests of our country.

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If we expect to provide competent, confident, and effective leadership in any future coalition war, we must begin preparing the leadership strategy for tomorrow's Eisenhowers today.

NOTES

1. Chester Wilmot, *The Struggle for Europe*, New York, Harper and Brothers, 1952, p. 116. Writing in the early days of the cold war, Briton Chester Wilmot sets out "to explain how the present situation came about; how and why the Western Allies, while gaining military victory, suffered political defeat." In so doing, he fired some of the first salvos in the post-war trans Atlantic sniping between the allied commanders. A Montgomery partisan, he faults American political naivete for the post-war European situation vis-a-vis the Soviet Union. It is, therefore, a significant compliment when he heaps heavy praise on Eisenhower, an American, as an outstanding allied commander.

2. Martin Blumenson and James L. Stokesbury, *Masters of the Art of Command*, Boston, Houghton Mifflin, 1975, p. 303. Blumenson and Stokesbury have written an excellent collection of essays on leadership and command in war in all its many aspects. Especially relevant to this paper are four of their five essays on coalition warfare, which, in effect, trace Eisenhower's development and exercise of allied command in World War II. Blumenson had a high regard for Eisenhower as a Supreme Commander and refers to him as "America's greatest field commander in World War II." He goes on to write that Eisenhower's allied "achievement was great. His military stature is assured." Blumenson is a noted Patton scholar and biographer, who also authored the US Army's official history of the Normandy breakout and race across France. He emphasizes the difference between the kind of leadership necessary for waging successful coalition war versus national field command when he points out that Patton, temporarily exercising coalition command in Morocco in 1942 "turned in a superb performance as a diplomat-soldier (p. 254)." This contrasts with his flamboyant, driving, aggressive leadership as an army commander later on, but serves to highlight the difference between coalition command and national field command. Eisenhower's and Patton's commandship in coalition war was, it seems, surprisingly similar, despite their different temperaments.

3. Martin Blumenson, *Eisenhower*, New York, Ballantine Books, 1972, pp. 156-159. This book, containing much of the same information and analysis of his *Masters of the Art of Command*, focuses solely on Eisen-

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hower's World War II coalition leadership. It includes a short biography of Ike's early career and professional development.

4. Stephen E. Ambrose, *Eisenhower: Volume I Soldier, General of the Army, President-Elect, 1890-1952*, New York, Simon and Schuster, 1983, p. 18. Ambrose is Eisenhower's official biographer and the best source of information on his life and influence. Ambrose has written several books and articles on Eisenhower's life, career, and impact on the twentieth century. He presents Ike's weaknesses along with his strengths, and his works provide a relatively well-balanced picture of Eisenhower's life and influence. Nevertheless, it is clear that Ambrose admires Ike and considers him one of the most important and influential figures of this century. He writes that "only a handful of men—Lenin, Stalin, Hitler, Mao, Churchill, Wilson, Franklin Roosevelt, and perhaps one or two more—had a greater role than [Eisenhower] did in shaping the world of the mid-twentieth century" (p. 13). This paper relies on Ambrose's books and articles for much of the information on Eisenhower's early life and professional development.

5. Ambrose, p. 18. Although there was a total of six Eisenhower brothers, one of them (Paul) died in infancy in 1894. Five grew to manhood, with only Dwight choosing to follow a military career.

6. Lawrence Van Gelder, *Ike: A Soldier's Crusade*, New York, Universal Publishing, 1969, p. 3-7; Ambrose, pp. 38-43. Eisenhower had made a bargain with his brother Edgar for each to help put the other through the University of Michigan by alternating years of work and study. Edgar went to school first and, in the meantime, Ike met Midshipman Everett "Swede" Hazlett, a local boy, who convinced him to apply for a free education at the Naval Academy. Eisenhower scored second highest on the competitive exam, and the high scorer chose Annapolis, Ike's first choice. He settled for West Point when he discovered that, if he held out another year for Annapolis, he'd be too old.

7. Ambrose, pp. 43-54. Eisenhower stood a lowly 125 of 164 cadets in his class in "discipline." His demerits were received for such "offenses" as smoking, untidiness, and pulling harmless pranks. He maintained his sense of humor about it all, however, and tried not to take the Academy too seriously. Ike's classmates liked him immensely and he was genuinely popular.

8. Van Gelder, pp. 8-10; Ambrose, pp. 43-54. It seems that Eisenhower chose Infantry branch as a result of his bad knee, combined with a relatively low class standing. At his commissioning physical, the Army doctor told him that he could have either Coast Artillery or Infantry, but not Cavalry, since it was considered to be more strenuous than the other branches on his knee. Eisenhower's 1915 USMA class has gone down in West Point lore as "the class the stars fell on," since 59 of its 164

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graduates attained general officer rank. Some of these included Bradley, Stratemyer, Ryder, McNarney, Van Fleet, and Harmon.

9. Ambrose, pp. 56, 60.

10. Van Gelder, pp. 14-18; Ambrose, pp. 60-63. Eisenhower's later difficulties with the leadership of Infantry branch may have begun during the 1915-1918 period when he "pestered the War Department with requests for overseas duty" (Ambrose, p. 16). He even tried for a branch transfer in an effort to get to France, but was unsuccessful.

11. Ambrose, p. 61. The author points out that, although Eisenhower missed out on an opportunity to go overseas, the Camp Colt Tank Corps assignment was, in reality, a choice one. It involved great responsibility, offered relatively independent work in a new and exciting type of warfare, promised speedy promotion, and assured command of thousands of men—all volunteers. Ike was promoted to major in May 1918, and lieutenant colonel that October (only the second member of the class of 1915 to reach that rank).

12. Omar N. Bradley and Clay Blair, *A General's Life: An Autobiography of General of the Army Omar N. Bradley*, New York, Simon and Schuster, 1983, p. 46.

13. Ambrose, p. 65. Even a Distinguished Service Medal for his work with the Tank Corps failed to soothe Eisenhower's disappointment at missing combat. Ike referred to the award as a "bitter reminder" of his failure to get to France.

14. *Ibid.*, pp. 65-66. Ambrose correctly points out that failing to command soldiers in combat does not necessarily lead to a conclusion that "this fact somehow disqualified him for high command." It certainly helped Ike avoid refighting World War I when he received field command in World War II. Indeed, the best of his chief critic Montgomery's battles, including his famous victory at El Alamein, were more like those of the First World War than those of the Second, and were characterized by an extreme cautiousness which fit rather uncomfortably in the Blitzkrieg era. The Third Battle of Ypres (Passchendaele), fought from July to November 1917, cost the British 300,000 casualties for a gain of about five miles. It came to epitomize the futile trench warfare mentality of World War I, and the cry, "Passchendaele!" became a rallying call for the pacifist and peace movements on England's university campuses between the wars. Despite missing out on the combat experience, Eisenhower at least avoided the trauma.

15. Russell F. Weigley, *History of the United States Army*, New York, MacMillan, 1967, pp. 400-401; Bradley and Blair, p. 48. The post-World War I decline of the American military establishment continued throughout the decade of the 1920s. In 1922, Congress reduced the Regular Army to 137,000, then in 1927 cut it to 118,750. Although the National Defense Act of 1920 had planned an American Regular Army

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of nine divisions, none was manned at more than skeleton strength. The progressive features of the National Defense Act of 1920, including the reorganization of the War Department, were frequently overcome by a frugal Executive Branch and Congress supported by an anti-war, pacifist attitude throughout the country. The world-wide Depression of the 1930s only made matters worse. Bradley characterizes the army of this period as an "absurdly inadequate Army attempting to scrape by in a nation . . . grown hostile to anything 'militaristic.'"

16. Frank J. Price, *Troy H. Middleton: A Biography*, Baton Rouge, LSU Press, 1974, pp. 98-99; Ambrose, pp. 67-69, 114. Ambrose reports that Ike turned down offers of higher paying civilian employment in 1919 and 1920 to remain on active duty in what became only the 16th largest army in the world. Eisenhower's attitude towards continuing to do his duty as a soldier is perhaps best shown in an incident concerning future general and corps commander in Europe, Troy Middleton. While serving in the Philippines in 1936, Middleton sought Eisenhower's advice about retiring and accepting a lucrative job offer from Louisiana State University. "Don't do it, Troy," Eisenhower replied, " . . . there is going to be a war, and we are going to be in it, and you are sure to be a division commander at least. It's your great opportunity, and if you quit us now, you'll miss it." Middleton, nevertheless, retired and took the position at LSU. Ike seemed less than pleased with Middleton's decision, and held it against him thereafter. In the closing days of World War II, when Marshall wanted to make Middleton (who had been recalled to duty for the war) a permanent major general, Ike snapped, "He left us when the going was tough."

17. Van Gelder, p. 20; Ambrose, p. 67.

18. Ambrose, pp. 71-72. Patton, whom Eisenhower met and worked with during World War I, published a similar article in the *Cavalry Journal* at the same time. The articles summarized the two men's conclusions about the importance of the tank in future warfare.

19. Ibid. The official view of the tank was that, since its mission was primarily to assist the infantry in crossing "No man's land," it must not be designed to travel faster than a walking infantryman.

20. There is no evidence that either Eisenhower or Patton knew of Liddell Hart or Fuller, nor were they aware of their theories of mechanized war. It seems that the two Americans independently arrived at similar conclusions based on their own work with tanks during the war.

21. Weigley, pp. 421-450.

22. Sir Basil Henry Liddell Hart, *The Memoirs of Captain Liddell Hart*, London, Cassell and Company, 1965, p. 64; General Andre Beaufre, "Liddell Hart and the French Army, 1919-1939," *The Theory and Practice of War*, edited by Michael Howard, Bloomington, Indiana, Indiana University Press, 1965, pp. 139-140; Ambrose, p. 72. Encouragement to

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actually "study" the military profession in all of its aspects has not always been forthcoming from the higher levels of leadership of many armies. In Britain, J.F.C Fuller wrote to Liddell Hart in 1924, "The CIGS [Chief of the Imperial General Staff] . . . said that no officer on the active list should be allowed to write any military book, as it was detrimental to military discipline! . . . he had laid it down as a principle that no instructor at the Staff College should be allowed to publish anything." In France in 1935, General Gamelin signed a circular reminding all officers that the High Command alone was qualified to define military doctrine and that officers should refrain on all occasions from advancing any personal views on the question. Eisenhower's experience, while disappointing, is neither surprising nor unique.

23. Van Gelder, pp. 20-21; Ambrose, pp. 73-78; Bradley and Blair, pp. 72-73. There can be little doubt that Infantry branch had decided Eisenhower's career was not worth their efforts, and that "choice" assignments should not be wasted on someone with no future. They consistently refused to assign him to career-enhancing positions, and persistently kept him away from the Infantry School—the place Bradley described as the "nursery school for generals" of World War II. Ike was even denied attendance at the Infantry Officers' Advanced Course since, in those days, it was a stepping-stone to the Command and General Staff School.

24. David Eisenhower, *Eisenhower: At War 1943-1945*, New York, Random House, 1986, p. 829; Ambrose *Eisenhower*, pp. 73-79. Major General Fox Conner had been Pershing's operations officer in World War I, and was acknowledged as "the brains of the AEF" (American Expeditionary Force). Patton, who had met Conner in France, introduced him to Eisenhower in 1920. It was chiefly through Conner that Ike later became known to Pershing and Marshall. He became Eisenhower's friend and true mentor, and "saved" the younger officer from a mediocre career of petty assignments. Eisenhower served as Conner's Brigade Executive Officer in the 20th Infantry Brigade in Panama, 1922-1924. David Eisenhower writes that Conner "impressed upon Eisenhower the idea of fighting in cooperation with allies, which he believed the next war would necessitate."

25. Mark C. Bender, *Watershed at Leavenworth: Dwight D. Eisenhower and the Command and General Staff College*, Fort Leavenworth, Kansas, US Army Command and General Staff College, 1990, pp. 37-41; Ambrose *Eisenhower*, pp. 79-81. Conner arranged for Eisenhower's appointment to the Command and General Staff School by engineering his assignment to recruiting duty in Colorado with the Adjutant General's branch. Ike spent the first part of 1925 as a recruiter, biding his time while waiting for his orders to Leavenworth.

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26. Ambrose, pp. 82-91. The assignment to Washington, DC to work under General Pershing, who was head of the Battle Monuments Commission, was arranged by Fox Conner. During this assignment, Ike's favorable work became known to then-Colonel George C. Marshall. Eisenhower's "reward" for good service to Pershing was a seat in the Army War College class of 1928. Upon graduation, he served a year in France, revising the Battle Monuments Guidebook he had written for Pershing. Ike returned to Washington, DC in November, 1929, for an assignment to the War Department staff. He was responsible for preparing plans for American industrial mobilization in the event of war. Ambrose writes that, given the times, "To most industrialists, Eisenhower's talk about cooperation between America's factories and the War Department in a program of unlimited production for war seemed unreal" (p. 88). A few years later, Ike used his experience in this position to good effect and became a "faculty graduate" of the Army Industrial College.

27. Weigley, pp. 421-423.

28. Ambrose, p. 93; Weigley, pp. 421-422. MacArthur's claim that Eisenhower "is the best officer in the Army" was high praise, but Marshall had received his own share of such superlatives during his career. In 1916, one of Marshall's commanders even went so far as to write on his efficiency report that he "would prefer to serve *under*" Marshall's command—a remarkable statement, even among the inflated rhetoric found in fitness reports!

29. Douglas MacArthur, *Reminiscences*, New York, McGraw-Hill, 1964, p. 315. Ambrose, pp. 93-101. MacArthur says little about his association with Eisenhower in his autobiography, but mentions, somewhat condescendingly, "I have always felt for him something akin to the affection of an older man for a younger brother. His amazingly successful career has filled me with pride and admiration."

30. MacArthur, pp. 94-97; Ambrose, pp. 90-95. The so-called Bonus March was a political event in the summer of 1932, in which a crowd of unemployed World War I veterans (estimated at about 17,000) marched on Washington, demanding Congress grant them an immediate cash bonus for their wartime service. They established a shanty town camp in Anacostia, near the Capitol, and conducted huge demonstrations. On 28 July 1932, MacArthur, then Army Chief of Staff, was ordered to disperse the marchers. Although he did it with very little damage and few casualties, it was a public relations disaster, making MacArthur and the Army appear to be waging brutal war on the nearly defenseless men. MacArthur called it the "most poignant episode" of his tour as Chief of Staff, and complained that he was unfairly treated in the press, which printed "the most extravagant distortions of what had occurred." Typically, MacArthur seems to have been his own worst enemy in this episode, since

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his strutting, martinet-like performance for the newsreel cameras probably did more than any written account to tarnish his image.

31. Some of these incidents include the Darlan controversy (November 1942), an initial cover-up of Patton's slapping incidents (August 1943), debate over who should liberate Paris (August 1944), the Strasbourg incident (January 1945), and the decision to halt at the Elbe River (April 1945). In each of these, Eisenhower claimed that "military necessity" over-rode any "political considerations."

32. Ambrose, pp. 101-119. Ambrose writes, "Nothing he [Eisenhower] did there met any of the criteria he himself had set down for a happy life" (p. 104). He goes on to describe some of the frustrations Eisenhower endured during his four years in the Philippines with MacArthur: "Eisenhower was more or less miserable. His relations with MacArthur became steadily more difficult. This deterioration was the result of two factors, their respective positions vis-a-vis each other and to the Philippine government, and their temperaments. Eisenhower dealt in details, MacArthur in generalities. Eisenhower worked with Quezon on a daily basis, while MacArthur stayed aloof . . . Where the practical Eisenhower saw problems, the visionary MacArthur saw possibilities. To Eisenhower, the Philippine General Staff was beset by rank-consciousness, backbiting, inefficiency, and corruption. To MacArthur, it was composed of loyal, intelligent men who were well on their way to learning how to run an Army" (p. 109).

33. Ibid., pp. 106-107, 109. Eisenhower continually professed to avoid the "political" aspects of military service throughout his career, and publicly stated his aversion to "playing politics." However, examination of his Philippine service shows a shrewd compromiser, who appreciated the value of an "indirect approach" to problem solving. If politics can be defined as "the art of compromise," then Eisenhower, despite his protestations, was more adept at its practice than he would have liked to admit.

34. Ibid., pp. 116-119.

35. Russell F. Weigley, *Eisenhower's Lieutenants: The Campaigns of France and Germany 1944-1945*, Bloomington, Indiana, Indiana University Press, 1981, pp. 8-28; Weigley, pp. 421-450; Ambrose, p. 120. Between 1930 and 1942, the American Army expanded from about 200,000 soldiers to over 5,000,000, was completely reorganized and restructured, and began operations on a global scale. Ike described his excited and positive state of mind about taking part in this unprecedented expansion in a letter to Omar Bradley in July 1940. Eisenhower was popular with his soldiers and made a point of sharing their hardships. He seems to have been an effective and outstanding commander.

36. Blumenson, p. 16; Ambrose, p. 127. Eisenhower's series of Chief of Staff positions (3rd Infantry Division, IX Corps, and Third Army)

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were the result of his superiors' recognition of his exceptional ability as an organizer, planner, and coordinator—who got the job done. He was requested, by name, for each of these positions.

37. Ambrose, pp. 128-131.

38. Forrest C. Pogue, *The United States Army in World War II. European Theater of Operations: The Supreme Command*, Washington, Office of the Chief of Military History/US Government Printing Office, 1954, pp. 33-34; Van Gelder, p. 24; Blumenson, *Eisenhower*, p. 16; Ambrose, pp. 131-133. Pogue, the Supreme Command's official historian, relates that Ike's call to the War Plans Division was "in part because of this work [Louisiana Maneuvers], but undoubtedly more because of his knowledge of the Philippines," since his position was that of Deputy Chief for the Pacific and Far East.

39. Pogue, pp. 33-34; Ambrose, pp. 133-136. Marshall tested the newly-arrived Eisenhower on his first afternoon in town (on Sunday, 14 December 1941), when he called him in and requested that Ike provide him with his assessment of a "general line of action" for the Pacific war. Eisenhower requested "a few hours" to develop his answer, and was sent off to work on a reply. At dusk that evening, he presented Marshall with a hand-typed sheet of paper outlining a Pacific strategy. Marshall agreed with Eisenhower's proposed strategy and sent him back to work to implement it. Ambrose characterizes this incident as Marshall's test of Eisenhower's ability to successfully function under the pressures of war. Ike passed the test.

40. Ambrose, pp. 135-136.

41. *Ibid.*

42. *Ibid.*, pp. 146-147. Ike's ability to work closely with British officers seemed remarkable to Marshall for, according to Ambrose, "Many American officers found their British opposite numbers to be insufferable not only in their arrogance but their timidity about striking the enemy." Eisenhower, who shared many of these feelings, was able to keep them hidden and confined to his diary. Outwardly, he always projected a spirit of allied cooperation and partnership.

43. Wilmot, p. 116; Ambrose, p. 152. Wilmot praises Eisenhower's "immediate and continuous loyalty to the concept of unity," and claims nobody else revealed Eisenhower's remarkable capacity for integrating the efforts of different allies and rival services, and for creating harmony between individuals with varied backgrounds and temperaments."

44. Ambrose, p. 152; Pogue, p. 34. Ambrose points out, however, that the British High Command was not unanimous in its high regard for Eisenhower. Most notably, the Chief of the Imperial General Staff, General Alan Brooke, maintained a "deep-seated prejudice against Americans," and "put Eisenhower down as an affable type with no strategic sense or command ability." Brooke, who probably coveted the Supreme

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Commandership for himself, continued to give Eisenhower only grudging, back-handed compliments in his diary, even after Ike proved extremely successful in the command. For his part, Eisenhower, who thought it was better not to mention someone if nothing good could be said of him, "seldom mentioned Brooke" (Ambrose, p. 151).

45. Maurice Matloff, *The United States Army in World War II. The War Department: Strategic Planning for Coalition Warfare, 1943-1944*, Washington, Office of the Chief of Military History/US Government Printing Office, 1953, pp. 10-17; Ambrose, pp. 180-181. Although both Eisenhower and Marshall were disappointed that North Africa (Torch) was chosen over the cross-channel invasion of France (Bolero-Roundup), both Roosevelt and Churchill were in agreement in the decision: Roosevelt, because he insisted on getting US troops into combat in 1942; and Churchill, because he considered an early attack on France too risky. There were other practical factors which favored the Mediterranean action, including limited shipping and landing craft, small number of American troops in theater, and the need to free Mediterranean sea lanes.

46. Blumenson, p. 19; Ambrose, pp. 186-187; Pogue, p. 42.

47. Blumenson, pp. 19-20. Epitomizing the "allied unity" attitude at Ike's headquarters is the oft-repeated story that an American could call a British officer an "S.O.B.," provided he didn't refer to him as a "British S.O.B."

48. Martin Blumenson, *Kasserine Pass*, New York, Jove Books, 1983, pp. 21-44; Stephen E. Ambrose, *The Supreme Commander: The War Years of General Dwight D. Eisenhower*, Garden City, Doubleday and Company, 1969, pp. 118-136. Since the Vichy government had concluded a peace treaty with Germany, the French forces in North Africa were in a difficult position when the Anglo-American allies invaded. To assist the Allies would surely bring Nazi reprisals, including the occupation of the remainder of France proper. Complicating matters was a huge cast of characters in the French leadership ranks, each with his own motives for resisting, or welcoming, the Allied assaults. Admiral Darlan was only coincidentally in North Africa at the time, visiting his son who was seriously ill. However, as Marshal Petain's deputy, his conversion to the Allied cause would bring a sense of legitimacy to a French defection. French forces in North Africa were overall quite weak, with outdated weapons and virtually no heavy arms or mechanization. Nevertheless, the Allies needed their assistance (or, at least, lack of resistance).

49. Ambrose, *Commander* p. 125; Blumenson, *Pass*, pp. 28-29; Ambrose, *Eisenhower*, p. 198. The Darlan controversy was effectively ended on Christmas Eve 1942, when a young Frenchman assassinated the Admiral. Most in the Allied High Command, including Eisenhower, considered the assassination "the best thing that could have happened."

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In this instance, it seems that Marshall and Secretary of War Stimson were Eisenhower's saviors, convincing Roosevelt that he had to publicly support his Allied Commander in Chief. Strengthening Eisenhower's position in the matter were the relatively few Allied casualties (1800 actual versus an estimated 18,000), purportedly resulting from the Darlan "deal." Marshall played up this point to good effect in the press.

50. The Battle of Kasserine Pass (14-22 February 1943) was actually the culmination of a series of actions centering around critical mountain passes in Tunisia. Rommel, although unsupported by General von Arnim, who commanded the bulk of Axis forces in Tunisia, smashed through uncoordinated American resistance and threatened the major Allied base at Tebessa. However, Rommel's attack, lacking von Arnim's support, eventually lost its momentum, and Axis forces retired back to the temporary safety of the fortified Mareth Line to await the expected Allied assaults. Although the reverses suffered by the green American troops were significant, they failed to seriously split the Allied coalition as Rommel hoped. The result was a concerted effort by the Allied command to correct the obvious deficiencies that Rommel's successful attack had uncovered.

51. Blumenson, *Pass*, pp. 303-320. A comparison of German and American casualty figures illustrates the lopsidedness of the Axis victory. German troop losses, to all causes, were less than 1,000 (989), while the Americans lost more than 20 percent (killed, wounded, and captured) of the 30,000 soldiers engaged. Despite the fact that Rommel withdrew from the fight, the American defeat was humiliating.

52. Ambrose, *Commander*, pp. 166-184; Blumenson, *Pass*, pp. 83-87, 121-123; Blumenson, *Masters*, pp. 267-286.

53. Blumenson, *Pass*, pp. 303-320. Rommel's intentions seem to have been to attempt to prevent the Allies in Tunisia from splitting the Axis forces there before Montgomery's Eighth Army arrived from the east. He probably also considered exploiting any success he gained by driving further to the west and threatening allied bases. Von Arnim's refusal to cooperate helped force Rommel to pull back his forces after inflicting the stinging defeat on the Americans.

54. Ambrose, *Commander*, pp. 175-178. Because Rommel had to withdraw, and the final victory in North Africa for the Allies seemed inevitable, Eisenhower suffered no permanent damage to his position as Commander in Chief. He turned the reverses to his own troops' advantage by capitalizing on their new-found realization that victory would have to be won the hard way. Ike directed that training would never stop, even for units in the line, and circulated the lessons of this first combat throughout US forces.

55. *Ibid.*, pp. 175-176, 341. Ambrose related that Eisenhower told Patton upon assuming command of the fired Fredendall's Corps that

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"you must not retain for one instant any man in a responsible position where you have become doubtful of his ability to do the job." Ambrose asserts that this attitude of quickly relieving those who can't measure up "was the great lesson of Kasserine Pass."

56. Ibid., pp. 168-169, 174.

57. Alfred D. Chandler, et al., ed., *The Papers of Dwight David Eisenhower, The War Years (Volumes I-V)*, Baltimore, Johns Hopkins Press, 1970, 2:1353; Ambrose, *Commander*, pp. 167-168. Eisenhower especially respected Bradley for this trait, later writing that he "never caused one moment of worry [and has] the respect of all associates, including the British officers."

58. Blumenson, *Eisenhower*, p. 48. Blumenson points out that this bag of German prisoners eclipsed even the staggering total the Russians captured at Stalingrad the same month. This undoubtedly helped Roosevelt and Churchill in their political jousting with Stalin.

59. Ambrose, p. 237. The British politician to whom Eisenhower made his "our" victory remark was Harold Macmillan, a future Prime Minister.

60. Matloff, pp. 68-76, 106-145; Ambrose, *Commander*, pp. 223-226.

61. Pogue, pp. 34-35. Pogue makes another perceptive observation of Eisenhower's abilities when he writes, "General Eisenhower's conciliatory attitude was at times misleading. While genial in his approach, he could be extremely stern if the occasion demanded. His temper . . . was sometimes explosive and his reprimands could be blistering. Those traits were balanced by the gift of enormous patience."

62. Dwight D. Eisenhower, *Crusade in Europe*, Garden City, Doubleday, 1948, pp. 206-208; Ambrose, p. 271.

63. Pogue, pp. 53-55. The Combined Chiefs of Staff directive, dated 12 February 1944, was an eight-paragraph document which also contained general information on command, logistics, coordination, and relationships with other United Nations forces and Allied governments.

64. Gordon A. Harrison, *The United States Army in World War II. European Theater of Operations: Cross-Channel Attack*, Washington, Office of the Chief of Military History/US Government Printing Office, 1951, pp. 269-321; Blumenson, *Eisenhower*, pp. 86-90.

65. Pogue, p. 175.

66. Ibid.

67. Bernard Law Montgomery, *The Memoirs of Field-Marshal the Viscount Montgomery of Alamein*, K.G., New York, Signet Books, 1958, pp. 289-299; John Keegan, *Six Armies in Normandy: From D-Day to the Liberation of Paris*, New York, Penguin Books, 1982, pp. 55-60. Montgomery wrote in his memoirs, "It will be manifest to the reader that from 1st September 1944 onwards I was not satisfied that we had a satisfactory organization for command or operational control." He harped on this

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point until forced to drop the subject in the spring of 1945. By then, the end of the war was nearly reached, making the question mostly academic.

68. Martin Van Creveld, *Supplying War: Logistics from Wallenstein to Patton*, New York, Cambridge University Press, 1977, pp. 224-230. Van Creveld calculated that Montgomery's "40 divisions" would, realistically, have been quickly reduced to about 18 when all logistical and operational requirements were considered. He weighs all the many factors in the "Broad Front-Narrow Front" strategy question and concludes, "In the final account, the question as to whether Montgomery's plan presented a real alternative to Eisenhower's strategy must be answered in the negative."

69. Walter Beddell Smith, *Eisenhower's Six Great Decisions (Europe 1944-1945)*, New York, Longmans, Green and Company, 1956, pp. 158-159.

70. Ambrose, p. 375. Francis de Guingand, Montgomery's Chief of Staff, was the one who warned his boss that Ike had prepared a cable. De Guingand pleaded with Eisenhower not to send it until he had talked with Montgomery. Monty quickly realized the impact of such a message, that neither Brooke nor Churchill would step in to save him, and immediately sent Ike a conciliatory note, dropping the ground command question.

71. Hugh Cole, *The United States Army in World War II. European Theater of Operations: Ardennes, The Battle of the Bulge*, Washington, Office of the Chief of Military History/US Government Printing Office, 1965, pp. 411-412.

72. Bradley and Blair, pp. 367-368. Bradley admits, "This was the darkest of times for me. Giving Monty operational control of my First and Ninth Armies was the worst possible mistake Ike could have made."

73. Wilmot, p. 615. Wilmot lists several factors which he feels made Ike's decision a truly great one: it showed a clearer grasp of the situation than any other American general; he intervened quickly and decisively; he reorganized the command when the front was split; he authorized yielding ground over a rigid defense; and he avoided the rush to counterattack too early.

74. Weigley, pp. 552-554. It seems clear that Eisenhower had sadly misjudged the strength of French feelings in this incident, despite the fact that Devers had advised him of the lack of necessity for any withdrawal. Eisenhower, however, was never close to Devers, and second-guessed him on nearly every point. Devers, who worked daily with the fractious French allies, had an excellent appreciation of all the factors involved, and had warned Eisenhower of the consequences of an attempt to withdraw. Ike simply ignored Devers' advice, to his own misfortune.

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75. Ambrose, pp. 377-378. Characteristically, Ike complained that he had to give in to the "political" aspects of what should be a straightforward "military" issue.

76. Blumenson, *Eisenhower*, pp. 155-156. Blumenson calls Eisenhower's "management of the complex establishment that won the war in northwestern Europe" his "superb accomplishment in the Second World War," including, as it did, the full spectrum of military, political, and diplomatic responsibilities. Blumenson concludes that no one else could have done it as well (including Eisenhower's old boss, MacArthur).

77. Ambrose, pp. 149-154, 216-237; Pogue, pp. 34-37.

78. Churchill remained an unflagging Eisenhower proponent throughout the war, and never failed to support the commander's decisions (despite his continual meddling in the military realm). In fact, Churchill was more supportive of the American general than Roosevelt was during the Darlan controversy.

79. Blumenson and Stokesbury, *Masters*, pp. 287-303.

80. *Ibid.*, p. 303.

81. Pogue, p. 55; Ambrose, p. 408. Marshall gave Eisenhower these accolades in a congratulatory message at the end of the war in Europe. Ambrose observes that, "It was the highest possible praise from the best possible source. It had been earned."

82. Blumenson and Stokesbury, *Masters*, pp. 244-305.

83. *Ibid.*, p. 307.

84. Pogue, pp. 34, 42.

85. Blumenson and Stokesbury, *Masters*, pp. 287-303.

86. Pogue, pp. 53-55.

87. Peter Paret, ed., *Makers of Modern Strategy: From Machiavelli to the Nuclear Age*, Princeton, Princeton University Press, 1986, p. 449. The quote is by Philip A. Crowl in his essay, "Alfred Thayer Mahan: The Naval Historian," and seems a particularly appropriate description of the primary benefit of studying history.

THE WEINBERGER DOCTRINE AND THE LIBERATION OF KUWAIT

THOMAS R. DU BOIS

THE AUGUST 1990 INVASION OF KUWAIT BY THE ARMED Forces of Iraq presents a unique opportunity to analyze United States national security decision-making and military strategy development. The opportunity is unique in that the analysis was real-time as the drama was played daily in capitals and media centers around the world. As US policy and strategy were developed in response to the Iraqi invasion, the elements of this response were fiercely debated on the national and international stages. Adding to the uniqueness of this situation is its place in history as the first major military challenge in the post-Cold War era. Indeed, it has been argued that the post-Cold War era will be indelibly shaped by the actions of the international community in coming to grips with the aggression of Saddam Hussein against sovereign Kuwait.¹

This paper will analyze and assess the national security decisionmaking process employed by the Bush Administration in dealing with the Persian Gulf situation. It will also examine the military and diplomatic strategy that

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evolved as events in the Gulf unfolded. The interlocking nature of these two processes will become evident as we study the dramatic events of the period and place in perspective the US responses to these events. Finally, this study will offer policy and strategy prescriptions which hold promise for application in response to future crises.

An undertaking of this nature carries with it a significant limitation. Unlike much historical analysis, we do not yet know how it will come out. The full impact of our diplomatic efforts and ultimate military action in the Gulf will not be known for years to come. The long-term relationship of the United States with the nations of the Gulf region and the relationships among these nations will become clear only in the light of historical hindsight. Perhaps most important, while military victory can be measured on the near-term battlefield, the enduring success or failure of our foreign policy can be known only over time.

This limitation notwithstanding, enough is already known about our strategy and policy decisions to embark on an analysis of these processes "in the raw." Several frameworks of analysis exist, but one which is particularly appropriate was advanced in 1984 by then-Secretary of Defense Caspar W. Weinberger, in which he developed six major tests to be applied in deciding the use of United States combat forces abroad.² These tests became popularly known as the Weinberger Doctrine. This paper will utilize the six Weinberger tests as a point of departure for the national security decision-making and national military strategy development processes as they progressed in this crisis from August 1990. It will expand upon, and update, an earlier effort by Col. Harry G. Summers, Jr., (USA-Ret.) by exploring a series of thought-provoking areas critical to the analysis of our policy and strategy development process.³

The fact that Secretary Weinberger's six tests were born primarily from our experience in Vietnam and Lebanon makes them particularly relevant to the Persian Gulf

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debate. In *Desert Shield/Storm*, we faced the same possibilities of a protracted, ill-defined, and publicly unpopular involvement that so critically marred our efforts in Southeast Asia. Additionally, fatalities suffered in the bombing of the Embassy Marine barracks in Beirut raised serious questions regarding the proper use of the military instrument of power.⁴

The literature of the period reveals vitriolic debate as the Weinberger Doctrine was assailed on several fronts. Secretary of State George Shultz, perceiving the tests to describe an unwillingness to use expensive military power, stated, "Power and diplomacy must always go together, or we will accomplish very little in this world. The hard reality is that diplomacy not backed by strength will always be ineffectual at best, dangerous at worst."⁵ Conservative writer William F. Buckley, Jr., claimed that " . . . Weinberger sets an impossible standard. The sine qua non of popular support is success. But, if the mission is indeed vital, then it has to be carried out, even at the risk of failure."⁶ William Safire likened the Doctrine to a "hospital that does not want to admit patients," and accused Weinberger of "moral blindness" by seeking to constrain the use of American power to those instances where success was assured.⁷

Despite this debate, the Weinberger Doctrine has endured as a standard by which one may judge the wisdom of employing United States combat forces overseas. With this as a backdrop, let us proceed to the discussion of how Weinberger's six tests could be applied to our development of policy and strategy in the Persian Gulf.

WEINBERGER'S SIX TESTS

1. The United States should not commit forces to combat overseas unless the particular engagement or occasion is deemed vital to our national interest, or that of our allies. Response to Saddam's annexation of Kuwait was vital

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to our national interests on a variety of fronts. Stability in this region was at stake. The Persian Gulf region has been, historically, among the most unstable in the world. Deep-seated religious and cultural divisions among the nations of the Middle East have resulted in a vast array of conflicts throughout history. This flux has further resulted in an amazingly convoluted history of shifting power centers and alliances. Given the significance of the Middle East to the world's economy, as well as that area's important geo-strategic position, political instability and military asymmetry pose serious threats.

The United States historical response to challenges in this region may seem inconsistent, as we have been at various times allied with, and opposed to, most of the countries in this region. Only our strong association with Israel has offered any true constancy. Nevertheless, our overall policy objectives do have a thread of consistency, and that thread is stability. Our apparent shifting of emphasis, over time, between Iran, Iraq, Syria, Egypt, Saudi Arabia, and others is, in reality, a reflection of our attempts to maintain balance and stability in the region.

A firm diplomatic and military response to this latest crisis was a logical extension of our long-standing regional policies. Iraq's invasion of Kuwait stands in sharp contrast, for instance, to the Iran-Iraq war. In the latter instance, overt US involvement was not seen as essential or desirable since the conflict seemed to be a virtual stand-off; balance in the region never appeared in serious jeopardy. Such was not the case in Kuwait. Iraqi objectives, frustrated for eight years in Iran, were achieved in five hours in Kuwait. Emboldened by this quick success, Iraq may well have expanded its aims to include Saudi Arabia, Bahrain, Qatar, or the United Arab Emirates. In fact, citing the amount of weaponry and ammunition seized on the Saudi border after the war, military experts are convinced Saddam's intentions did not end with Kuwait.⁸ Stability and

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balance were clearly at risk and, hence, United States response was both required and justified.

The historic role of the United States as a world leader also placed response to this crisis within our national interests. It can be argued that in an era of declining defense budgets, arms control agreements, and "peace dividends," the US had a vested interest in reasserting its willingness and capacity to take decisive action in response to international events. The invasion of Kuwait, a gross violation of international law, demanded action. To fail to heed the plea of both Kuwait and Saudi Arabia for assistance (whether or not we engineered this invitation) would have been to abrogate our leadership role. Even as we sought to divest our role as the world policeman, we could not escape our responsibilities for leading the world response to aggression.

Beyond stability and our own prestige, this crisis was vital to the crafting of what President Bush has called a "new world order." The invasion of Kuwait interrupted what has been called the "general euphoria" of the post-Cold War period and provided a preview of how this uniquely American concept of a new world order might look.⁹ The United States, as the preeminent conventional superpower, took the lead and amassed an impressive coalition in opposition to Iraq. Strange bedfellows, indeed, came to the forefront in this crisis as the USSR and Syria stepped up to the table with less reluctance than either Germany or Japan. In remarkable fashion, the United Nations acted decisively, and with near unanimity.

While the international response to this crisis was initially encouraging to the concept of a new world order, a challenging agenda remained. The major nations of the world were justifiably impressed with the unified condemnation of the Iraqi aggression from such surprising quarters as Iran, Libya, and Syria. The support of the Soviet Union, and lack of opposition from China, in the UN Security Council were further reasons for optimism. Nonetheless,

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we should not rush to the conclusion that this temporary coalition accurately reflected agreement with our view of a new world order. Significant and potentially insurmountable obstacles remained. Each of the nations that joined us did so with its own national interests clearly in mind. Merely joining us in opposing Iraqi aggression did not mean that Iran, Syria, or Saudi Arabia was ready to share our views on economic development, democratization, human rights, or other core issues that form the basis of conflict and instability in the region. Likewise, cooperation from the USSR did not mean that the Soviets had abandoned their historic sponsorship of client states.

More realistically, we should view these developments in cautiously optimistic perspective. At the very least, it was a positive trend that was in our vital interest to encourage, since, as our own ability and desire to "go it alone" diminishes, this collegial response is just what is needed to take its place.

In addition to the new world order, there was oil. While the "blood for oil" argument has been used to denigrate our involvement, the economic fact is inescapable. The prospect of Saddam Hussein in control of the oil reserves of Iraq, Kuwait, and, potentially, Saudi Arabia and its smaller neighbors, presented frightening economic possibilities. With our own economy teetering on recession, we could ill afford the massive disruption of world economies that could ensue were Iraq to garner control over such a vital commodity. It is ironic that some of our major allies, notably Germany and Japan, who have the greatest reliance on Middle East oil, made relatively meager contributions to the effort. Notwithstanding their constitutional limitations on military action, the monetary pledges of these two nations appeared almost token, and surprisingly reluctant. Given the interlocking nature of international politics, one can only assume that the United States will redress this apparent shortcoming in other venues.

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The spectre of nuclear and chemical blackmail served as additional justification for US involvement. Left unopposed, Iraq would eventually develop the technology to match its will to become a nuclear, biological, and chemical power in the region. The US, in concert with the world community, could not tolerate the unbridled economic and military leverage this would place in the hands of an unstable ruler in an unstable region.

Finally, our historically close association with Israel placed response to Iraq in our national interest. Our cultural, economic, political, religious, and strategic ties with Israel demanded that we respond to regional security threats. A successfully aggressive Saddam, having vowed repeatedly to destroy Israel, posed such a threat. As events turned out, it was only our strong presence that permitted the Israelis to forego military response to Iraqi Scud attacks. Lacking this restraint, the Allied coalition would have looked much different and the battlefield, as well as the outcome, may have been dramatically altered.

For all the foregoing reasons, it is clear that the US policy for the introduction of combat troops met the first of Weinberger's tests. The national decision-making process that led to troop introduction was crafted with a wide variety of valid, vital national interests in mind. The national strategy, by which we planned to deploy these forces, leads to the second of the Weinberger tests:

2. If we decide it is necessary to put combat troops into a given situation, we should do so wholeheartedly, and with the clear intention of winning. To assess compliance with this test, one must have a firm idea of what "winning" means. Given the earlier discussion on the genesis of the Weinberger Doctrine, it seems clear that he had military victory in mind. Hence, the successful application of this test could avoid the physically and morally draining experience of Vietnam. Having decided that introduction of troops was necessary, rather than adopt the gradual escala-

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tion strategy of Vietnam, President Bush inserted a combat force capable, from the outset, of achieving military victory. The rapid deployment of over 200,000 troops to Saudi Arabia was a militarily sufficient force to achieve our immediate objective of halting Iraq's aggression at the Saudi border. Significant by their absence were military advisors, observers, or small-scale peace-keeping forces. While the US policy placed primacy on a peaceful resolution of the conflict, there could be no doubt that the strategy to employ the military instrument had winning armed conflict as its objective.

By amassing so potent a military force, we also advanced the possibility of peaceful resolution by signalling, unequivocally, to Saddam our resolve to engage militarily should diplomacy fail. Unlike Vietnam, there would be no doubt in the minds of our troops, politicians, media, general population, or enemy, that should hostilities erupt, US armed forces were there to secure military victory. Our assessment of the enemy's size, strength, and capabilities led us to assemble an awesome armada of high-technology weaponry on land, on sea, and in the air. The war plan developed to support this armada had, as its end objective, swift, decisive, and unequivocal destruction of the enemy with minimum possible allied casualties. Absent were convoluted rules of engagement, safety zones, and ever-changing political restrictions placed upon warfighters. In its place was JCS Chairman Colin Powell's exhortation to "find the enemy, cut it off and kill it."¹⁰ President Bush stated the case most clearly: "I will not, as Commander in Chief, ever put somebody into a military situation that we do not win—ever. And there's not going to be any drawn-out agony of Vietnam."¹¹ Employment of a "winning"

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strategy has relevance only, however, in terms of the objectives of that strategy and this moves us to a discussion of Weinberger's third test:

3. If we do decide to commit forces to combat overseas, we should have clearly defined political and military objectives. This concept of clearly defined objectives seemed to trouble the Administration throughout the crisis. Despite considerable effort on the part of President Bush, Secretary of State Baker, and Secretary of Defense Cheney to elucidate our political and military objectives in the Gulf, significant confusion and disagreement persisted. Our initially stated objectives were straightforward: deter further Iraqi aggression and defend Saudi Arabia; secure the unconditional removal of Iraqi troops from Kuwait; permit the return of the legitimate Kuwaiti government to authority. However, having repeated these goals almost daily since 2 August 1990, we still seemed divided. Senator Sam Nunn, arguably the most influential senator on US military policy, stated as late as November, "We're committed [to defend Saudi Arabia], but I do not think that means we have to build up an offensive force to liberate Kuwait."¹² Others openly speculated that our real goal was the removal of Saddam Hussein and the destruction of the Iraqi army. They saw this goal as unachievable with anything other than offensive military operations and, hence, questioned both our "peaceful resolution" political policy and defensive military strategy.¹³

US political and military objectives were initially clear. The specific diplomatic and military actions necessary to achieve them evolved over time. As the crisis unfolded, the success or failure of initial efforts determined the character and extent of future efforts. The Bush Administration had a definitive view of what it hoped to achieve and stated these objectives forcefully. It is equally clear how the Administration hoped to achieve these objectives. World-wide diplomatic pressure, strict UN-sponsored economic sanctions

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enforced by a tight naval embargo, and the presence of enormous military firepower on Iraq's border, were all calculated to achieve our objectives without firing a shot.

Then, in late January, something happened. It appeared that the war could be quickly successful, while at the same time, ugly. Our military success, coupled with a chilling array of atrocities by the Iraqis, led to a reevaluation and expansion of our original objectives. Our rapid achievement of air supremacy, with lighter than expected losses, enabled us to wage a relentless air campaign, in essence unopposed. The resultant damage to Iraqi defenses and significant attrition forced upon its ground troops substantially reduced the spectre of a costly, bloody ground war to liberate Kuwait. These early, and almost total successes in the air war gave certain life to expanded expectations and more ambitious objectives.

Another key to the broadening military objectives was the litany of violent, senseless atrocities committed by Saddam's army. The indiscriminate Scud attacks on civilian targets in Israel and Saudi Arabia and the rape, torture, and mutilation of Kuwaiti citizens, galvanized coalition opposition to Saddam's post-war survival. His obvious mistreatment and exploitation of allied POWs, pollution of the Persian Gulf, destruction of Kuwait City, and vindictive torching of the Kuwaiti oil fields gave rise to visceral demands for retribution in kind.

As the war drew to a successful conclusion, alliance demands for destruction of the Iraqi war machine became more strident. Abject capitulation became a prerequisite for ending hostilities. President Bush's rejection of the spate of last minute Soviet-sponsored peace plans appeared, on the surface, to ensure compliance with our original objectives as outlined in the 12 United Nations resolutions. In reality, it now seems evident, the coalition had raised the ante. Emboldened by our military success and enraged by Iraqi abominations, we began to look beyond the liberation of Kuwait, and to the destruction of Iraqi warfighting capabil-

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ity and the political castration of Saddam, both in Iraq and in the region.

These new "de facto" objectives drew widespread support, and more than a little criticism. The long-term impact of this expansion on our reputation in the Middle East cannot be calculated as yet. The effect upon relations between the US and USSR will also be left to historians to measure. Be that as it may, the fact is inescapable: our military and political objectives were altered substantially throughout the course of the crisis. Clausewitz has written, "No one starts a war—or rather, no one in his senses ought to do so, without being first clear in his mind what he intends to achieve by that war and how he intends to conduct it."¹⁴ It seems, in this case, President Bush had that clear vision initially, but that events conspired to drive an expansion of our goals. Such an ad hoc approach to military and political objectives of war carries with it high risk. It is sometimes this approach that makes managing the peace more difficult than managing the war.

To this point, we have applied the Weinberger tests to US Persian Gulf involvement in terms of vital national interests, a winning strategy, and clear-cut objectives. As we have just seen, objectives can undergo reassessment. So too, military forces may also require adjustment—and this brings us to Weinberger's fourth test:

4. The relationship between our objectives and the forces we have committed—their size, composition, and disposition—must be continually reassessed and adjusted if necessary. Here, the evidence is abundantly clear that we were true to this test. Given our August 1990 objectives (defense of Saudi Arabia, removal of Iraqi troops from Kuwait, and restoration of the legitimate government) we developed a strategy of economic sanctions and defensive military force. Our commitment of 230,000 troops was sufficient for the task. The force mix of approximately 165,000 ground and air troops and 65,000 seaborne troops

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was adequate and appropriate, particularly in view of the 25,000 troops supplied by other nations as part of the multi-national force.¹⁵

As October drew to a close, however, Saddam had not folded under the threat of military force. Likewise, the diplomatic pressures applied across the international spectrum had met with little success. The economic sanctions, while taking their toll, would require significant time to have a telling impact. With all this in mind, a reassessment was in order. Our political and military objectives had not yet changed, but our means of achieving them had. As the likelihood that economic sanctions and defensive military strategies would succeed decreased, President Bush ordered a further commitment of an estimated 200,000 troops. This action fueled negative Congressional and media reaction, claiming that our objectives had now become offensive. These critics, however, seriously missed the point. As just discussed, our objectives were ultimately to change as the hostilities progressed. But this early increase in manpower was not the signal that critics claimed. While initial force levels were sufficient, potentially, to coerce Saddam, more firepower was needed to force his compliance militarily. So, in ordering more troops, President Bush at once complied with Weinberger's fourth test (reassessment) as well as his second (commit enough force to win). Unfortunately, the hue and cry that met this additional commitment is illustrative of the challenge the President faced in meeting the fifth of Weinberger's tests:

5. Before the United States commits forces abroad, there must be some reasonable assurance we will have the support of the American people and their elected representatives in Congress. In terms of the success or failure of US national policy and its related military strategy, this concept of public and political support may be the most compelling test of all. Turning first to public opinion, by November it was evident that the President's initial wide-

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spread support was eroding. Opinion polls showed favorable response to Mr. Bush's actions in the Gulf dropping from 82 percent on 20 August to 51 percent by 13 November. Only an equal 51 percent approved of the decision to send the additional troops to the area.¹⁶ As with any opinion poll, it was difficult to judge how much of this erosion was tied specifically to our Gulf policies, and how much reflected the President's general decline in the polls due to his "no new taxes" reversal and his perceived lack of leadership during the budget debacle. By any standard, however, it appeared that public support was waning before the first shot had been fired. Some of this erosion might be attributed to the substantial role played by the Reserves and National Guard. The media aggressively reported on the family hardships caused by the call-up of various Reserve and Guard units in support of *Desert Shield*. Unlike any conflict to date, the saga of *Desert Shield* was being played on Main Street, USA, well before hostilities had begun.

One media strategy used by Mr. Bush and his policymakers was to keep the public focused on the vital nature of our national interests, and to continually emphasize the multinational character of the operation. By doing this, they hoped to avoid the public connotation that *Desert Shield* was another example of the US flexing its military muscle in some remote and questionably important part of the world. Rather, the perception they sought to maintain was one of the US stepping up to its leadership role in confronting hostilities and atrocities in an area of the world vital to our security and way of life.

The President began by focusing outrage at the personality of Saddam Hussein. American experience was awash with hatred for other regional players such as Khomeini and Khadafy. President Bush succeeded in holding public opinion by emphasizing Saddam himself as much as his actions. For his part, Saddam's blatant manipulation of the press, particularly vis-a-vis the hostages,

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complemented our public relations strategy. The key question, unanswerable at that time, was whether public support could persevere throughout the time it would take for our diplomatic and economic strategies to work. Moreover, given the early erosion of support already evident, could American public opinion stand the casualties that seemed inevitable if we were forced to take the combat option?

Once hostilities began, the public support for our war effort became one of the most gratifying aspects of the crisis. Spurred by confidence in our civilian and military leadership, a sense of national spirit swept the country. Rallies, outpourings of support, and the ever-present yellow ribbons completely submerged the amazingly limited number of protest movements. The large-scale participation of the Reserves and Guard that originally threatened to be divisive, in fact, had the opposite effect as communities throughout the nation rallied behind "their troops." Of course, it is far easier to be patriotic in victory, and we will fortunately never know what the impact would have been upon public support if casualties had been high. But, rather than credit this to the vagaries of the American people, one can attribute this public opinion success to the winning, "no more Vietnam" policy of the Administration. The fact that public support persevered even as our objectives expanded, can be attributed equally to President Bush and General Schwarzkopf, whose leadership earned the trust of the nation which believed expanded objectives were both just and achievable.

The issue of Congressional support was equally delicate and evolutionary. Much of the debate on Capitol Hill revolved around the constitutional question of the power to declare war. The Administration and the Congress were sharply divided and the Congress was divided within itself on the distinction between committing troops to combat and the declaration of war. Well beyond the constitutional aspects, the debate threatened to digress into a turf battle with many members prepared to mount an assault on

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what, during the Vietnam War, had been labelled the "imperial presidency." In fact, the debate on this issue, since Congress repealed the Gulf of Tonkin Resolution in 1971 and then throughout the Watergate and Iran/contra era, had centered on the risks inherent in a militarily adventurous president, unfettered by legislative oversight.¹⁷

Although the President and his supporters argued for a free hand, it was obvious that the US position would be strengthened if the President could garner the support of the Congress. Not only would this send a stronger signal to Saddam, it would also avoid the operation's being characterized, at home and abroad, as "Bush's war." Secretary of Defense Cheney, himself a former member of the House, was not, however, sure that Congress was up to the task. Citing Congressional debate in 1941, he observed, "World War II had been under way for two years; Hitler had taken Austria, Czechoslovakia, Poland, Norway, Denmark, the Netherlands, Belgium, France and was halfway to Moscow. Congress, in that setting, two months before Pearl Harbor . . . agreed to extend the draft for 12 more months, by just one vote." He went on to state that divisive debate in the Congress would play into Saddam's hands by creating the impression that time was on his side.¹⁸

It was not altogether clear how Congress would react in a straight up or down vote on a Presidential request to declare war, absent a first strike from Iraq. Without a Pearl Harbor type catalyst, protracted debate on the wisdom of our strategy and policy, short of war, would be potentially harmful to our attempts to pressure Saddam. Should Congress officially state that military action would be authorized only in response to an Iraqi attack, the UN-declared 15 January 1991 deadline for the use of force would be seriously undermined.

Moreover, the Congress itself was not united on the wisdom of "stepping up to the bar" on this issue. While some rattled the constitutional sword and the War Powers Act, and went so far as to sue the President in court, others

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seemed more than willing to "let George do it." The Vietnam experience clearly showed the political expediency of avoiding the collateral damage of a potentially unpopular war. Many in Congress seemed more comfortable with a vague "sense of Congress" resolution than with unequivocal support or opposition to the President's policy.

Even in the face of such Congressional uncertainty, it remained in the President's best interest to place the same emphasis on support at home as he had on solidifying international unanimity for our position. Unless he could ensure a quick, surgical victory, with minimal US casualties (and it was becoming increasingly unlikely that he could), the wisdom of history and the fifth Weinberger test would argue that we enter hostilities congressionally and popularly united. As the *Washington Times* observed, "If Mr. Bush wants the latitude to start a war by invading Iraq, the approval of King Fahd or the United Nations will mean nothing without the approval of the American people. And that approval can only come through an open debate in Congress and a formal declaration of war."¹⁹

Ultimately, however, Congress did rise to the occasion. The debate in both Houses was spirited and emotional, but noticeably lacking was the partisan rancor that had so pitifully marred the budget fiasco only two months earlier. Rather, the debate revealed broad consensus on the overall objectives of the Bush Administration with disagreement over the means. A substantial number in Congress favored extended reliance on the economic sanctions to bring Saddam around. An equally substantial contingent argued that the President must be given a free hand to deal diplomatically and militarily with the crisis.

As the debate was engaged, Rep. Henry Hyde (R-III) claimed the President wanted a "blank check which leaves the decision to him when, how, where and what force he can use. He is not going to get that, clearly."²⁰ Senate Majority Leader George Mitchell echoed similar sentiments when he stated the President wanted "a blank check au-

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thorization to say the President at some indefinite future time under unspecified circumstances, can make war. That is a negation of the role of Congress in our system of government."²¹

From the Administration's perspective, Vice President Quayle observed that Congressional critics "have a direct line to Saddam Hussein" through the news media, and that the Iraqi leader may be getting the message that the President "cannot and will not use force because Congress will not let him." The Vice President also attacked critics on another front, stating that US forces in the Gulf "don't look forward to spending the next couple of years waiting around in the Saudi desert while Congress debates what to do next."²²

The final vote was carried by the Administration by the slimmest of margins in the Senate (52-47) and a more comfortable margin in the House. But, regardless of plurality, the US approached the 15 January 91 United Nations deadline on the use of force politically united. Speaker of the House, Rep. Tom Foley, has observed that, despite the honest disagreement on means, "the Congress united behind the President in war and gave constitutional meaning" to the actions of our nation.²³ The executive and legislative branches were acting in concert and public support for US policies was strong at home and abroad. All that remained was Weinberger's sixth test—to exhaust all other means prior to combat:

6. Finally, the commitment of US forces to combat should be the last resort. It is clear that US policy and strategy were true to this test. While our rapid deployment of troops in August, and the subsequent doubling of force levels, may have appeared militarily confrontational, our policy was, in reality, most patient. Our initial strategy of defensive build-up and reliance upon economic sanctions supports this point. The Bush/Baker aggressive strategy of diplomatic coalition advanced our policy of avoiding

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armed hostilities. By invoking the aegis of the United Nations diplomatically, financially, and, in many cases, militarily, the Administration clearly signalled our desire to achieve our objectives short of combat.

Much will be made of the diplomatic activity immediately preceding hostilities. The potential impact of the "last hope" meeting between Secretary of State Baker and Saddam dominated the world media. The apparently petty bickering over dates for this meeting, in reality, foreshadowed the intensity of the brinkmanship that would dominate diplomatic efforts throughout the crisis. As one nation after another sent its envoys to Baghdad, only to be rebuffed, Saddam seemed to grow in stature. Insistent that the US would not contribute to this phenomenon, President Bush held firm that discussions would take place on the US schedule, not Saddam's. Soon thereafter, the much-heralded meeting between Baker and Iraqi Foreign Minister Aziz collapsed in Geneva, with Aziz refusing to receive President Bush's letter to Saddam, a letter which has been called "the most historic document of George Bush's presidency."²⁴ At this point, it can be safely surmised that war was inevitable.

But, was it not inevitable long before than? Some might argue that the massive build-up of coalition forces from August to November created an environment not unlike that leading up to World War I in Europe. In that situation, the mobilization plans of Russia, Germany, and France seemed to take on a life of their own, stair-stepping their way to inexorable armed conflict. History will show that this analogy does not suffice. Unlike the prelude to World War I, the mobilization for *Desert Shield* was done in full world view. Aggressive diplomatic efforts were conducted coincident with the build-up. World opinion strongly favored avoidance of armed conflict. The virtue of hindsight will show that this war remained avoidable until the first shot was fired.

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Theorists of war termination have criticized strategists and military planners for concentrating on how wars begin and are fought, and neglecting how they are stopped.²⁵ In the case of *Desert Storm*, the phasing of the war actually gave the US a second chance to apply both termination theory and Weinberger's "last resort" test. By mid-February, the month-long air war had taken its expected toll on Iraqi command and control elements and had inflicted significant damage on their ground forces. As preparations were being made to initiate the ground war, a frenzied series of peace proposals emerged from bilateral Soviet/Iraqi meetings. Although it is now known that a specified date had already been set for the initiation of the ground war, a persuasive case can be made that hostilities could have been terminated diplomatically if the proper deal could have been struck. Maj. Gen. Perry Smith (USAF, Ret.) has observed that Saddam became quite adept at staying one step behind the power curve by consistently accepting the last discarded peace proposal.²⁶ For our part, President Bush clearly sensed victory and was adamant that termination would be on coalition terms only. In one of an impressive series of diplomatic strokes, the President publicly praised Soviet intentions while steadfastly adhering to our own diplomatic agenda. But, when viewed in the context of the Weinberger "last resort" test, it is evident that, at each major phase of *Desert Shield/Storm*, military force was indeed applied only after all else had failed.

Before leaving this subject of the relationship between negotiation and combat action, it is fruitful to point out what may well become one of the major lessons of the Gulf War. President Bush was determined not to repeat the mistakes of Vietnam and the latter stages of the Korean War, wherein we conducted formal negotiations during hostilities and altered our battle plan in response to the ebb and flow of the peace talks. History has shown that variously escalating or de-escalating hostilities to support bargaining positions at the negotiating table is hazardous, both diplo-

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matically and militarily. While success is ultimately possible, the more likely result is protracted conflict, increased casualties, and the concomitant erosion of public support, both domestic and international.

Desert Storm exemplifies the proper role of negotiation during armed conflict. At no time, prior to victory, did the US offer a cease-fire to permit negotiating positions to be sorted out. On the contrary, while diplomatic initiatives abounded during the conflict, our military policy remained unchanged—the war would continue, unabated, unless and until Iraq fully accepted coalition conditions. In a combination of Weinberger's second and sixth tests, the lesson here is that once the last resort has been reached, military combat force must be steadfastly applied toward winning militarily.

CONCLUSION

As stated at the outset, the Iraq invasion of Kuwait provides a unique opportunity to observe US national policy and military strategy at work. The specific military tactics and operational art which General Schwarzkopf has labeled "absolutely textbook,"²⁷ will be the topic of study for students of warfare for generations. In contrast, this paper has focused on the decision-making process that led up to the introduction of combat forces into the crisis. Utilizing the Weinberger Doctrine, while not a universally accepted litmus test for this decision process, does provide a useful framework for analysis.

In this crisis, President Bush began by orchestrating a plan for immediate defensive military response to achieve near-term objectives. He then moved to pursue non-military options of economic sanctions and the garnering of world opinion in an attempt to convince Saddam of the folly of his aggression. Through reliance on the United Nations and a multi-national military force, Bush managed to seize and hold the high ground, diplomatically. When

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all political, diplomatic, and economic initiatives failed, he did not hesitate to employ the military instrument of power with sufficient force and will to ensure victory.

Of potentially longer-term importance, President Bush has set the international agenda for a new world order wherein nations might more readily put aside parochial interests in deference to higher international goals. At the same time, the President has succeeded, domestically and internationally, in restoring trust and confidence in United States institutions. Succinctly put, the Vietnam syndrome has been relegated to history.

For strategists and policy-makers, *Desert Shield/Storm* offers a prescription for the future. Analysis of US reaction to the Persian Gulf crisis places in clear perspective the relative roles of the elements of national power. It provides a microcosmic view of the relationship between national goals, policies, objectives, and the strategies to achieve them. While not all future crises will fit the Persian Gulf mode, the lessons of *Desert Storm* abound for political, diplomatic, and military decision makers.

One can only hypothesize at this point on the ultimate impact of these momentous and exciting events. But, as seen through the focus of the Weinberger Doctrine, and remembering that war is, indeed, "nothing but the continuation of policy with other means,"²⁸ US policy and strategy in the Persian Gulf crisis should certainly earn the approval of Weinberger and Clausewitz alike.

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6

IS THE MARITIME STRATEGY DEAD?

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2 AUGUST 1990 WAS A MEMORABLE DAY FOR THE US NAVY. As Saddam Hussein's forces invaded neighboring Kuwait, the only US military forces in position to respond immediately were US Navy forces forward deployed in the Persian Gulf. This capability was a classic demonstration of the utility of the Maritime Strategy, a strategy designed to give national decision makers the option of quickly engaging an enemy with forward deployed naval forces. Even as Iraqi troops were pouring across the Kuwaiti border, however, on the other side of the world, President George Bush was speaking about planned changes in US defense policy which would threaten the very existence of the Maritime Strategy. As important as Iraq's actions were for the security of the Persian Gulf, for navalists, the President's words may ultimately be considered to have been much more significant. Listeners might have missed it, but his short speech about the shape of the post-Cold War military sounded the death knell for the independence of the Navy. The question is whether his remarks also doomed the Maritime Strategy. Although the basic tenets of the Strategy

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were being borne out that day, will 2 August 1990 be remembered as the day the Maritime Strategy died?

THE CONCEPT

Although the concept had been in discussion among strategists for several years,¹ as a discrete entity, the Maritime Strategy first appeared in 1982 in response to a request from Admiral William N. Small, the Vice Chief of Naval Operations. Although he was merely asking for a briefing that could provide strategic guidance to the Navy staff to use during budget development, the briefing that resulted was an innovative distillation of naval strategic thought that proved so popular it quickly became the official statement of the Navy's strategy.²

Identified from the beginning as the maritime component of the National Military Strategy, the Maritime Strategy postulated a three phase offensive naval role in the event of escalating tensions with the Soviet Union. The first phase was simply crisis control in situations which had the potential to grow to global superpower confrontation. The goal would be to apply sea power to deter war, but, should deterrence fail, the strategy envisioned that naval forces forward deployed for execution of phase one could easily transition to war. The strategy was not envisioned as a war winning strategy in and of itself. Rather, the goal was to use maritime power in combination with the efforts of the other services and forces of US allies to complement the effort on the central front in Europe.³

The concept of using sea power to offset the strength of a continental power was a classic maritime strategem in the tradition of Sir Julian Corbett. No matter what pitched land battles might be offered or opened by a continental

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power, a sea power can and should use its maritime mobility and flexibility to choose the time and place of battle. More importantly, by attacking the continental power on its flanks, the maritime power can directly affect the major battle ashore by forcing the continental power to withdraw forces from his chosen area of battle to defend his flanks.⁴

THE DEBATE

Proponents of the continental approach to warfare and other critics greeted the Maritime Strategy with extreme skepticism and engaged its advocates in an intense public debate.⁵ Although the debate raged throughout the 1980s, the strategy proved to be extremely popular, not only for its original function as a guide for budget preparation, but also as a focus for discussion of warfighting strategies, as well as a rallying point for supporters of the Navy. On an intellectual level, the Navy and its supporters had captured the high ground. Because the Maritime Strategy was carefully tied to the National Military Strategy and officially sanctioned, the Navy had established the terms of debate. Despite the best efforts of the critics to discredit the concept, the debate itself kept both the strategy and the Navy very much in the public eye.⁶

On a more practical level, the Maritime Strategy proved to be an exceptionally useful argument for the Navy on Capitol Hill. Throughout the 1980s the Navy was unusually successful in convincing the Congress to fund its programs. Supporters and critics of the Navy alike agree that, to a large degree, this success was made possible because the Navy and its supporters were able to articulate an easily understandable strategic concept in the Maritime Strategy. Even though the strategy spoke only of the application of military power at sea, common sense seemed to suggest that the strategy was consistent with the National Military Strategy which required coordination of the environment-specific elements of US military power.⁷ Thus,

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despite the continuing debate, there was a general consensus in the Congress that the Navy's programs were supportable because they were well grounded in the National Military Strategy. As the changes in the Soviet Union became apparent, however, and congressional perspectives and priorities began to shift, the Maritime Strategy became somewhat more of a problem than a help for the Navy as it dealt with Congress.

Since the foundation of the Maritime Strategy was a scenario based upon a protracted conventional war with the Soviet Union, as the perception of a Soviet threat eased, the scenario became increasingly more improbable and difficult to defend. Although Navy leaders recognized the changing situation and began to evolve the strategy, the views they expressed were not dramatically different from those that had been expressed throughout the 1980s. Despite the apparent change in Soviet intent, their argument went, Soviet naval capabilities had not been reduced, but were, in fact, increasing as older ships were retired and a modernization program continued apace. Further, since the world remained a dangerous place, the Navy still needed to be able to respond quickly to regional crises around the globe.

The official Navy view was, therefore, that the highly capable, flexible, and forward deployed Navy centered on the aircraft carrier battle group (CVBG) that had been designed and built for war with the Soviets was the appropriate Navy for the post-Cold War world.⁸

This conviction was not popular on Capitol Hill, and those Navy officials who appeared before Congress to testify in support of the 1991 defense budget using arguments based on the Maritime Strategy encountered disbelief and skepticism.⁹ For many on the Hill, both the Maritime Strategy and the National Military Strategy were perceived to be seriously out of date. The dramatic collapse of the communist world had so drastically reduced the perception of threat that they saw little necessity for, and had little pa-

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tience with, those who espoused a maritime or military strategy which required the maintenance of a large, expensive navy.

Coming as it had, coincident with a severe fiscal crisis in the US, many in the Congress saw the changed threat as an opportunity for significant cuts in the military which could yield large budgetary savings. Serious proposals which advocated across the board cuts of as much as 50 percent of the active force, were being favorably discussed on Capitol Hill.¹⁰ One Congressional proposal which was accorded great respect by other Congressmen was set out by Senator Sam Nunn, chairman of the Senate Armed Services Committee. His carefully thought out concept for a restructuring of the armed forces and their missions would have radically reorganized the US military and could have had a significant effect on the Navy by reducing its forces, altering forward presence, and shifting some of its basic missions to other services.¹¹

THE SPEECH

It was against this background that the President outlined his vision of the shape of the post-Cold War military in a speech at the Aspen Institute on 2 August 1990. Acknowledging the significant changes taking place in the world security situation, Mr. Bush announced that the active duty military services would be reduced 25 percent by 1995. Rather than proportion the cuts equally among the services, he indicated that the reductions would be made selectively. The governing criteria for the cuts would be to create forces that could maintain four enduring security interests of the US: continue deterrence of potential enemies, exercise forward presence in key areas, respond effectively to crises, and retain the national capacity to rebuild the forces that were to be cut, should any of the first three interests be threatened.¹²

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Although the speech was visionary, on the political level it served a much more practical purpose. Because it was a Presidential policy statement, it pushed aside the Congressional proposals and established the terms of debate, which recaptured the initiative on changes in the military for the Administration.

Within the Department of Defense, the President's speech also validated the effort of Secretary of Defense Dick Cheney to reshape the military. Despite opposition from the individual uniformed services, the speech was clear and unequivocal Presidential support for the base force concept that had been developed by Paul Wolfowitz, Undersecretary of Defense for Policy, and General Colin L. Powell, Chairman of the Joint Chiefs of Staff. In separate studies they had conducted a thorough review of US strategy and concluded that major changes in force structure and deployment patterns were possible. The new strategic concept would not only reduce forces, but would also realign those remaining forces under consolidated geographic and functional commands.¹³

The development of the base force concept was important not only for its dramatic result, but, more importantly, for the process by which it was carried out. In a major departure from post-World War II military tradition, General Powell, as Chairman of the Joint Chiefs, was able to conduct a study into a very contentious issue without the active participation of the individual uniformed military services. Prior to 1986, such a study would have been virtually impossible without the involvement of the uniformed service chiefs because decisions of the Joint Chiefs of Staff were corporate in nature and had to be arrived at by consensus. This meant that each service chief had a vote (or veto) on all issues which came before the JCS, whether or not they directly concerned his service. Under that system, had there been direction from the Secretary of Defense to find force reductions of the above magnitude, the responsibility of the individual chiefs to be an advocate for

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their service within the JCS would likely have clashed with their responsibility to act as a member of the corporate body for the good of the country. In such a situation it is entirely probable that they would have been unable to agree.

What made the study possible was the Goldwater-Nichols Department of Defense Reorganization Act of 1986 which transferred the duties then being performed by the corporate JCS to the Chairman.¹⁴ Although not specifically mentioned in the Act, a major motivator in the effort to consolidate control in the person of the Chairman was a Congressional perception of, and frustration with, the Navy's tradition of independence and freedom of action. Believing itself unique among the services because of its ability to operate without close involvement with either the Army or the Air Force, the Navy had historically resisted attempts at service unification, preferring instead the intricate staffing of the pre-1986 JCS system that had carefully balanced each service's responsibilities and concerns. Despite intense opposition from distinguished Navy leaders and partisans, the Goldwater-Nichols Act laid the groundwork for the elimination of the Navy's independence by giving the Chairman unprecedented power to determine and articulate the military strategy that is laid before civilian authorities.¹⁵

As long as Admiral William J. Crowe, Jr., was Chairman, the effects of the Act on traditional methods of cooperation among the Joint Chiefs were relatively mild. By the time General Powell assumed the office in October 1989, however, the strategic reevaluation made necessary by the combination of fiscal crisis and waning threat made full imposition of the CJCS powers authorized by the Act inescapable. Since the Act also transferred control of the Joint Staff from the corporate JCS to the Chairman, General Powell was able to control the study without the previously customary central role of the individual services. For

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the Navy, the results of this change in procedure were momentous.

THE EFFECT

Most observers would assume that the major effect of the base force concept on the Navy would be the reduction in CVBGs from 14 to 11 or 12.¹⁶ Although the loss is clearly important to naval operations, for those more knowledgeable of mainstream naval thinking, the more serious effect was the loss of the Navy's traditional independent control over planning for employment of naval forces.

At first glance, this assertion may be difficult to comprehend, especially since US naval capabilities have been centered around the CVBG as the basic building block of naval power since 1942. Originally developed to defeat Japanese naval power, the CVBG has evolved into the smallest unit capable of projecting power and sustaining offensive action in the face of a three dimensional threat of air, surface, and submarine attack. Moreover, as technology has improved, the CVBG has been invested with increasing capability, reinforcing its capacity to defend against concentrated enemy attack and execute its assigned power projection mission. The CVBG was the unit of power envisioned for execution of the Maritime Strategy, the sine qua non of naval power.¹⁷ Although the CVBG has been repeatedly attacked by critics as too vulnerable in an age of cruise missiles, too expensive in an era of fiscal problems, or inconsequential in terms of the mission assigned,¹⁸ its utility and success in a wide variety of employments over the years have convinced successive Presidents and normally parsimonious Congresses to fund a powerful and flexible CVBG force.

To understand, therefore, why the loss of two or three CVBGs could be considered less important than the loss of independence, it is necessary to understand the history of naval operations. In the days when communication with

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ships at sea was extremely difficult, admirals were often simply given a task and then expected to use their training, experience, and ingenuity to carry it out. Because navies were so difficult to redirect once they were out of sight of land, political authorities were forced to recognize from operations at sea were elementally different from operations on land. Thus, they acknowledged that the degree of control normally associated with military operations ashore was impractical at sea. Despite dramatic improvements in communications, this tradition of independent operations has persisted to the modern era, but not without increasing concerns expressed by political and military authorities.

For the US Navy, the tradition of naval independence in the modern era was validated by its experience in World War II. Although the Central Pacific campaign was clear and convincing evidence that by itself the Navy could achieve spectacular results against a country uniquely vulnerable to sea power, against a continental state it was recognized that sea power had limited relevance unless it was applied in close coordination with land power.¹⁹ The central lesson of the war, therefore, was that in a global conflict, a combined arms approach is the key to success. The issue was how best to achieve that coordination.

Navalists contended that due to the essential and enduring differences between war at sea and on the land, the Navy could be of most value to the effort ashore if it retained freedom of action, i.e., the ability to apply its power at the most advantageous point as determined by the Navy. Others, notably senior military commanders, argued that since the Navy was needed to get the Army ashore and to support it until the battle moved too far inland for sea power to affect it, they should have control of naval forces similar to that which they exercised over their land and air forces.

Though acceptable command arrangements were ultimately worked out, command and control arrangements between the Navy and the Army had been difficult

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throughout the war. In the view of senior military officers, the Navy's obdurate insistence upon maintaining its basic independent freedom of action, even when operating in direct support of a major Army effort ashore, was seen as unnecessary and a potentially dangerous split in the unity of command. General MacArthur's experience with Admiral Halsey at Leyte Gulf was a case in point.²⁰

Against this background, the post-war efforts at service unification take on more meaning. For navalists, the 1948 organization of the Department of Defense, the demotion of the Secretary of the Navy from the Cabinet, and the effort to consolidate naval aviation under the Air Force were misguided attempts to reduce the Navy's independence by stripping it of its influence and control over maritime operations. In spite of these efforts, the Navy was able to retain effective control over its operating forces through an August 1948 agreement with the Secretary of Defense, which was subsequently endorsed by President Truman and issued as Department of Defense Instruction 5100.1. This instruction, which defined the roles and missions of the armed services, granted control over the internal structures and composition of the operating forces, as well as responsibility for the formulation of tactical doctrine, to the parent service.²¹

This control over how the forces were to fight was to become a key factor in continued Navy freedom of action after 1958. In the DOD reorganization passed that year by Congress, independent control over the Navy's operating forces passed from the CNO to the unified commanders.²² Despite this apparent setback, by combining doctrinal control with its influential position in the corporate JCS structure the Navy retained an effective lock on the planning for the employment of Naval forces. Although the unified commanders were specified as the warfighters, the plans they prepared had to be reviewed and approved by the corporate JCS. Thus, if the unified commanders envisioned employing naval forces in any manner different from the

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Navy view, the Navy's blocking position in the corporate JCS could have prevented approval of the plan. In such an atmosphere, continued naval independence was assured.

This tradition of independence was an important element of naval thinking in the post-war era. Although international or budgetary climates would cause occasional retrenchment, Navy statements throughout the post-war period reveal a strikingly consistent offensive orientation that would have been lacking had the Navy not perceived itself as a somewhat independent element of national power.²³ Despite this tradition, however, there was a fairly common perception that the Navy's strategic thinking was generally focused on issues that had little relevance to the battle on the Central Front. Thus, when the Maritime Strategy was advanced by the Navy as a means to influence events on the ground in Europe, it was seen by many as a bold resurgence of independent naval thinking, a perception that was greatly enhanced as naval officers and others eagerly grasped the concepts of the strategy. In the years that followed its appearance, a virtual avalanche of articles, books, and papers was produced which used the Maritime Strategy to justify weapons systems, develop operational concepts, rework operational plans to defend geographic theaters, and apply the concepts to operations with allied navies.²⁴ Ironically, as discussed above, it was that very independence that was at least in part responsible for the Congressional perception of naval obstinacy that led to the Goldwater-Nichols Act.

Even as the Navy was displaying this resurgence in strategic thought, the tradition of independence that fostered it and the system under which it flourished were passing away. With the Presidential endorsement of the Powell study on 2 August 1990, the traditional pattern of naval independence was broken. The Navy may still have had responsibility for developing forces and employment patterns, but despite the most ardent desires of navalists, however, the Powell study was ample evidence that ulti-

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mate control over the shape of the Maritime Strategy no longer rested with the Navy. As the single authority for integrating and presenting strategy to civilian authority, the Chairman now had ultimate control over the Maritime Strategy. This begs the obvious question.

THE QUESTION

Is the Maritime Strategy dead? The answer is yes . . . and no. If one considers it to be what its critics have always maintained it was, i.e., a Navy-only, go-it-alone prescription for a glorious charge of the naval light brigade, then the Maritime Strategy is indeed dead. If one considers it to have been justification for a 15 CVBG Navy, or indeed for CVBGs themselves, then the Maritime Strategy is likewise dead. On the other hand, if one considers the Maritime Strategy to be precisely what the Navy has always said it was, i.e., the maritime component of the National Military Strategy, then it most emphatically is not dead. In many ways it is different from the strategy articulated throughout the 1980s, but it is alive and kicking.

The differences in the Maritime Strategy are both subtle and significant. They were made necessary by changes in the basic concepts of the National Military Strategy, which were outlined by Admiral David E. Jeremiah, Vice Chairman of the Joint Chiefs of Staff, in testimony before the House Armed Services Committee on 12 March 1991.²⁵ The concepts are deterrence, power projection, forward presence, force reconstitution, collective security, maritime superiority, security assistance, arms control, and technological superiority. At first glance these bear a striking resemblance to the concepts of the previous strategy, but there are both philosophical and very real differences. The differences—the transition of forward defense to forward presence, coalition warfare conducted with strong alliances to collective security, and the shift from maritime superior-

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ity to maritime and aerospace superiority—had a major effect on the Maritime Strategy.

Recognizing the changing global strategic environment, the revised National Military Strategy considers the most likely threat to US interests to be crises arising from instability in the former Third World.²⁶ As a result, the emphasis of US military activity has shifted from global containment of communism and readiness for war (forward defense) to global stability, i.e., influencing events where US interests are at stake (forward presence).

Similarly, the transition from collective defense, i.e., coalition warfare with strong alliances, to collective security is an important philosophical shift. Collective defense requires a common perception of an external threat. Since the Soviet Union is no longer perceived as enough of a threat to compel collective defense, collective security, an arrangement which implies transitory military coalitions under a common political umbrella, was viewed as much more useful in dealing with future crises.

Finally, the shift from maritime superiority to maritime and aerospace superiority is a clear implication that in future military actions the Navy will not necessarily be acting alone.

For the Maritime Strategy the effect of these changes was profound. Although the basic elements of the Strategy remain the same, i.e., deterrence through the forward deployment of highly capable, flexible naval forces, the shift in emphasis altered the definition of terms. For navalists, the best means of crisis response is through forward defense which can best be attained by keeping CVBGs constantly deployed to traditional operating areas in the Mediterranean, the Western Pacific, and the Indian Ocean. The revised defense philosophy considers such constant deployments neither necessary nor possible. Influencing events in a given region through the application of military power does not require maintaining CVBGs constantly on station. Forward deployed CVBGs may provide the Presi-

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dent the option of using the most capable, balanced, and politically independent forces available, but they are not the only option.

Recent political trends clearly indicate that mobile, flexible, and joint power projection capabilities will be required in the future, but nothing indicates that all contingencies will be intense enough to warrant using CVBGs. Scenarios which require a multiple CVBG projection of power such as the El Dorado Canyon operation against Libya or massive infusion of joint US military power such as the Desert Shield/Desert Storm operation against Iraq are likely to be few and far between. Most will likely be lesser contingencies, in which US interests can be adequately represented by some different, lesser degree of military power. If the Maritime Strategy were to remain viable for such contingencies, it needed to be able to provide other options.

THE ANSWER

The primary focus of the new defense strategy as outlined both by the President and the Chairman was on regional threats to US interests. CVBGs are exceptionally useful tools of retribution, but for contingencies at a level of violence lower than punitive strike (e.g., non-combatant evacuation operations, presence, etc.), the Maritime Strategy had to develop a more flexible approach to conflict in the mid range of the spectrum of violence. This was not a rejection of the previous strategy, but was, rather, an addition to it made possible by refocusing its basic tenets on a different threat scenario. The point was to integrate the Maritime Strategy more thoroughly into the full range of the National Military Strategy.

Comprehensive studies undertaken within the Navy staff indicated that viable options for dealing with global instability already existed with the Navy's well developed amphibious capability. Although it had always been con-

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sidered a major component of maritime power, the Marine Corps had not possessed a central role in the Maritime Strategy as it had been developed in the 1980s. Since the Strategy was based on a protracted conventional war with the Soviet Union, the major Navy concern had been fleet action and power projection against the Eurasian heartland, a role which did not envision forcible entry by amphibious warfare. In the revised international environment, however, the Marines' ability to create over-the-beach power projection packages tailored to a particular situation became a major asset. The result was the elevation of the Marine Air Ground Task Force (MAGTF) to a position coequal with the CVBG as a central element in the revised Maritime Strategy.²⁷

This expansion in warfighting focus not only dealt with the changing threat to US interests, but also recognized that the 25 percent force reduction mandated by the base force would effectively prevent continuation of the existing pattern of forward deployment if that pattern were solely focused on CVBGs. The post-World War II pattern had been to deploy the CVBGs to hubs in the traditional operating areas where US and Soviet interests overlapped at likely points of crisis. The revised Maritime Strategy postulates that the reduction in bilateral tension with the Soviet Union will allow the Navy to break out of that pattern to operate over a broader area, with different configurations of combat power. CVBGs can still operate in those hubs as necessary, but along with the Marine Air Ground Task Force (especially when escorted by surface action groups), the central elements of the Maritime Strategy are freed up for the full range of missions from presence to regional warfare. This revised operational concept, designed to be employed independently or in concert with assets from other services, provides a critical capability for dealing with the uncertainties of the revised threat.²⁸

The essential point to be taken from this discussion is not simply that the Maritime Strategy has evolved, but to

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note how quickly it happened and how thoroughly it integrates naval capability into the revised National Military Strategy. The effort to revise the strategy began only after a 23 August 1990 memorandum from the CNO.²⁹ Despite the Navy's loss of independence as a result of Goldwater-Nichols, by publishing the revised strategy within a few months of the public disclosure of the Presidential guidelines and the base force, the Navy demonstrated that it had retained the intellectual capacity necessary to determine its own future. The Chairman of the Joint Chiefs of Staff and the theater CINCs may be the designated warfighters, but how they fight the war with naval forces is still being determined by the Navy.

THE CONCERN

This does not imply that all is wonderful within the Navy. Despite the clear leadership evident in the revised strategy, not everyone within the Navy agrees with its new direction. Private and public concerns have been raised that the force reductions might preclude accomplishment of basic USN missions. The basic fear is that the assumptions that underlie both the Presidential direction and the base force might be wrong. If so, the US may be required to reestablish a more aggressive defense posture vis a vis the Soviet Union. A reduction in maritime forces, especially in deployable CVBGs, could effectively preclude that capability, especially if the previous level of commitment is required. If so, the mid-range naval missions postulated by the revised strategy might have to be curtailed.³⁰

How such concerns will affect naval force levels and the Maritime Strategy in the future is far from certain, but for the immediate future they will not. By designing a revised strategy, the Navy demonstrated that no matter what the rapidly changing world environment may portend for naval forces, the maritime component of an inte-

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grated National Military Strategy is flexible enough to handle it.

2 August 1990 may not be remembered as the day the Maritime Strategy died, but it could be called the day it was reborn with a purple skin.

NOTES

1. For a full discussion of the antecedents to the Maritime Strategy and the pre-1982 formulations, see Captain Peter M. Swartz, USN, *The Maritime Strategy Debates: A Guide to the Renaissance of US Naval Strategic Thinking in the 1980s*, Monterey, CA, Naval Postgraduate School, 1988, and Colin S. Gray and Roger W. Barnett, ed., *Seapower and Strategy*, Annapolis, Naval Institute Press, 1989.

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3. Admiral James D. Watkins, USN, *The Maritime Strategy*, US Naval Institute Special Supplement, January 1986, pp. 13-14.

4. Sir Julian S. Corbett, LL.M., *Some Principles of Maritime Strategy*, London, Longmans, Green and Co., 1918.

5. For examples of criticism, see Robert W. Komer, *Maritime Strategy Or Coalition Defense?*, Cambridge, MA, Abt Books, 1984, John J. Mearsheimer, "A Strategic Misstep: The Maritime Strategy and Deterrence in Europe," *International Security*, Fall, 1986, pp. 3-57, and Jack Beatty, "In Harm's Way," *The Atlantic Monthly*, May 1987, pp. 37-53. For examples of the argument in favor, see Colin S. Gray, *Maritime Strategy, Geopolitics, and the Defense of the West*, New York, National Strategy Information Center, 1986, and Linton F. Brooks, "Naval Power and National Security: The Case for the Maritime Strategy," *International Security*, Fall 1986, pp. 58-88.

6. The overall effect of the debate is best described in Swartz.

7. Colin S. Gray and Roger W. Barnett, "Reflections," Gray and Barnett, *op. cit.*, p. 377.

8. See Admiral Carlisle A. H. Trost, "Maritime Strategy for the 1990s," *Naval Review* 1990, *US Naval Institute Proceedings*, March 1990, pp. 92-100, and Rear Admiral William A. Owens and Commander James A. Moseman, "The Maritime Strategy: Looking Ahead," *US Naval Institute Proceedings*, February 1990, pp. 24-32.

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12. President George Bush, "Remarks at the Aspen Institute Symposium in Aspen, Colorado, 3 August 1990," *Weekly Compilation of Presidential Documents*, Monday, 6 August, 1990, pp. 1190-1194.
13. Michael R. Gordon, "Pentagon Drafts New Battle Plan," *The New York Times*, 2 August 1990, pp. A1, A14.
14. US Congress, House, *The Congressional Record*, 12 September 1986, pp. H8656-8658.
15. Richard A. Best, Jr., "Will JCS Reform Endanger the Maritime Strategy?" *National Defense*, February 1987, pp. 28-30.
16. Gordon, *op. cit.*
17. See Admiral James D. Watkins, "Sea Power - The Carrier Battle Group," *NATO's Sixteen Nations* (Special Issue 1/84) April-May, 1984, pp. 98-103, and Norman Friedman, "The Battle Group and US Naval Strategy," *Defense Science 2002+*, October 1984, pp. 47-51.
18. "New Study Challenges Validity of US Carrier-Based Maritime Strategy," *Inside the Navy*, 2 July 1990, pp. 8-9. See also Komer, Mearnsheimer, and Beatty, *op. cit.*
19. Russell F. Weigley, *The American Way of War: A History of United States Military Strategy and Policy*, Bloomington, Indiana University Press, 1977, p. 311.
20. At Leyte Gulf, Admiral Halsey operated in support of General MacArthur's troops ashore, but also had tasking from Admiral Nimitz which told him that should the Japanese aircraft carriers appear, their destruction was a primary task. Because he went after the Japanese carriers, he allowed Japanese battleships to get close to the landing area. E.B. Potter, *Nimitz*, Annapolis, Naval Institute Press, 1976, pp. 342-343.
21. CJCS Report: *Roles and Functions of the Armed Forces*, attachment to Chairman, Joint Chiefs of Staff Memorandum CM-2128-89 dated 11 September 1989, pp. 5, 8.
22. John G. Kester, "The Future of the Joint Chiefs of Staff," *The Joint Chiefs of Staff: A Better System?*, AEI Foreign Policy and Defense Review, Washington, American Enterprise Institute for Public Policy Research, 1980, p. 3. See also Lawrence J. Korb, *The Joint Chiefs of Staff*, Bloomington, Indiana University Press: 1976, p. 17.
23. Roger W. Barnett and Jeffrey G. Barlow, "The Maritime Strategy of the US Navy Reading Excerpts," Gray and Barnett, *op. cit.*, pp. 324-349.
24. Over 600 such articles are catalogued in Swartz, *op. cit.*

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25. Admiral David E. Jeremiah, Vice Chairman of the Joint Chiefs of Staff, *Statement Before the Committee on Armed Services, United States House of Representatives*, committee draft, pp. 2-3.

26. The analysis which follows is based on a comparison of the basic concepts of the National Military Strategy presented by Admiral Jeremiah *ibid.*, and a discussion of the enduring elements of the National Military Strategy as presented in the Joint Military New Assessment, "New JCS Policy Paper Says Basic Elements of US Strategy Will Remain the Same," *Inside the Navy*, 7 January 1991, pp. 1, 6-7.

27. "New Maritime Strategy Will Elevate Marine Corps' Role in Naval Operations," *Inside the Navy*, 24 December 1990, pp. 1, 5.

28. The Honorable H. Lawrence Garrett, III, Admiral Frank B. Kelso, and General A. M. Gray, "The Way Ahead," *US Naval Institute Proceedings*, April 1991, p. 41.

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7

THE FUTURE OF DEFENSE INDUSTRY

REMAINING COMPETITIVE IN THE INTERNATIONAL MARKETPLACE

RICHARD THRALE

THE UNITED STATES HAS BEEN THE UNDISPUTED WORLD technological leader since the end of World War II. Throughout the Cold War era, this leadership role has been the cornerstone of her security and economic well-being. Concern has been mounting over the past decade or so that this technological edge is being seriously eroded. Fears are now arising that US security is being jeopardized by the technological gains of her competitors and by her growing reliance on foreign sources for supply of high-technology goods and services. The loss of markets abroad, the shut-down of manufacturing plants at home due to foreign competition and the huge trade deficit accumulated in only a few years are seen as signs of the decline in her leadership role. In place of her clearly preeminent position of the past, her role today is being described in more restrained terms as "first among equals."¹

This essay by Lt-Col Richard Thrale, Canadian Forces, a student at the Industrial College of the Armed Forces, won recognition in the Chairman, JCS, Strategy Essay Competition.

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LOSING THE TECHNOLOGICAL EDGE

If, indeed the technological edge that the US has enjoyed is declining, the question becomes one of what can be done to enhance her potential for remaining on top. The answer I see falls within the spectrum of international cooperation. My premise is that US technological leadership is suffering from the ill effects of too many inward looking, short-sighted and often overly restrictive policies and practices. I feel there is a need to reorient US strategies to face the challenges of foreign competition. International cooperation is a principal key to addressing this.

In my paper, although my focus will be on the *defense* industrial base, I will interchangeably use the broader "industrial base" terminology which includes the commercial manufacturing sector. This is because there is often no clear-cut distinction between the two. Dual-use technologies and overlapping production lines have clouded the distinctions.

I will start off by examining, in a general sense, the current state of the industrial base and the concerns which exist about its eroding leadership role in the face of foreign competition. I will then look at the strategy of international collaboration. What does this embody? What are the trends and issues? What must be done to strengthen the US competitive edge?

FOREIGN COMPETITION AND DOMESTIC ILLS

In my opening section, I alluded to a growing perception that the US industrial base is being eroded and is on a downhill slide which is threatening her world leadership status. Despite general economic prosperity, there is concern in almost every sector about America's ability to compete in the international marketplace and fear about foreign encroachment into domestic markets. In this

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greater section, I will analyze in greater detail what is driving this perception.

The Declining Industrial Base

At the close of World War II, the US was left with an economy which was significantly ahead of any other country. Most of the post-war era has been marked by her technological dominance. Her strong economy and her large technological lead were to become enduring cornerstones in her security strategy for countering the Soviet threat throughout the entire Cold War period. The Marshall Plan, which was implemented at the end of the war for the revitalization of the Western European economies, and the assistance which the US provided under the Plan are testimony to the preeminent position that she held.

Clearly, this preeminence was left unchallenged throughout the 1950s and well into the 1960s. During this period, collaboration with NATO allies, as part of the US security policy, meant that most of the defense equipment used by these allies was either bought from the US or incorporated her technologies. Similarly, cooperative defense programs brought US defense equipment and technology into the Japanese and South Korean markets in the Western Pacific as well as into many other markets throughout the world.

As economic recovery in Western Europe and Japan gained momentum and as new industrialized countries began to emerge elsewhere, US industry increasingly began to feel the impact of competition from these quarters. For instance, by the early 1960s, Britain's defense industry had emerged to the point that she was again designing and building most of her own weapon systems. France followed suit about the same time, starting the indigenous development of her own tanks, aircraft, and other weapons of war. By the mid to late 1960s, intra-European development of weapon systems had been adopted as a common approach to security. In 1965, Britain and France began co-

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development of the Jaguar aircraft. In 1968, co-development commenced between Britain, West Germany, and Italy on the Tornado aircraft. A year later, France and West Germany had joined efforts to develop the Alpha jet. The above illustrate moves by countries to lessen their dependence on US industry while striving to build up their own industrial capabilities. These actions also mark the emergence of military technologies in international markets that are capable of rivaling those of the US.²

The situation today is that countries like those in Europe along with Japan and South Korea, who once depended on US aid, have become exporters themselves. But this emergence of players in the international marketplace has not stopped there. We must not overlook the role of the Soviet Union and the Warsaw Pact countries as major players on the world scene. Today, the market is also booming with Third World producers. China, North Korea, Israel, Brazil, Egypt, Pakistan, South Africa, India, and Singapore are but some of the weapons export leaders and many of them are offering high-quality items at low cost.³ Brazil, for instance, is exporting comparatively less expensive military aircraft. India, Israel, and China are among those who have developed and are marketing varying levels of munitions and missile production capabilities.⁴

The extent of the change which has taken place is depicted in Table 1 below. It shows a relative comparison of US productivity with that of the other Group of Seven member countries in selected years, 1950-1988. Although the US has remained the world's most productive major economy, by the 1980s, foreign productivity levels, as shown in the table, had become comparable to those in the US.

There are numerous examples of how the US industrial base is being eroded by foreign competition. The US share of the world tool market has declined to less than half of the 1980 level. Over the past 18 years, two-thirds of the domestic market for machining centers have been lost

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TABLE 1. RELATIVE LEVELS OF GROSS DOMESTIC PRODUCT,
GROUP OF SEVEN COUNTRIES, SELECTED YEARS,
1950-88 US GDP - 100⁶

Country	Gross domestic product per employed person					
	1950	1960	1970	1980	1987	1988
United States	100.0	100.0	100.0	100.0	100.0	100.0
Canada	76.8	79.7	83.8	92.5	95.4	94.6
Japan	15.2	23.3	45.7	62.7	70.3	71.5
France	38.1	47.6	63.8	80.2	85.0	85.6
West Germany	34.5	49.1	61.9	77.5	80.4	81.0
Italy	29.3	41.7	63.0	81.8	84.9	85.1
United Kingdom	53.7	54.5	58.2	66.4	72.6	71.6

to foreign competition. During the same period, almost all of the domestic market for stereo equipment, 90 percent of the color television market, and nearly three-quarters of the market for telephones have disappeared into the hands of foreign firms.⁷ In 1970, US inventors accounted for 73 percent of the patents granted in the US; by 1986, their share had declined to 54 percent.⁸ While this trend was not unique to the US, it vividly portrays the growth of outside innovation.

An Ailing Industrial Base in a Competitive World

While the relative decline in the US technological lead can be clearly attributed to a corresponding growth of industrial competition from abroad, there are several domestic ills which are contributing to this decline. Many are chronic in nature and the symptoms have long been ignored. Others have become apparent only as a result of analysis regarding why foreign competition has been gaining an edge on domestic and international markets. My aim here is to take an inventory of the main ills which are plaguing the US industrial base. A caution about these is that they are only a broad diagnosis to get a feeling of the pulse.

The first category of ills focuses on industrial management issues. The unchallenged US technological lead has historically seen greater emphasis placed on production

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quantities than on the quality of what was being produced.⁹ Japanese and West German goods, for example, quickly gained international reputations for quality in the 1960s and 1970s while US-produced goods began to be bypassed because of failure by management to adhere to standards of high quality.

Another contributing factor in this category which has deterred US technological growth is the problem of complacency on the part of US industrial management. With world leadership in their hands, there was no outside challenge, therefore no need for management to aggressively seek out and adopt innovation in their industries. Meanwhile, managers of foreign industries invariably were faced, right from the outset, with the challenge posed by US industrial might. To compete with the US, foreign industrial managers had to actively strive to attain better manufacturing processes and better products.

A third problem from which US industrial managers have long suffered is shortsightedness. There has been a tendency to view the nature of markets as national, not international. Therefore, the potential of cornering world markets has often been overlooked. There has also been a tendency to capitalize on short-term profits at the expense of long-term gains. We see evidence of this in everything from investment strategies to market penetration. Perhaps the most telling example of shortsightedness has been the failure of US defense industrial managers to fully exploit the commercial or dual-use potential of technologies on which they have expended vast developmental resources.¹⁰

The success of the Japanese-produced automobiles on the American and international markets bears witness to the effectiveness of their industrial managers. Their attention to better quality, innovation, and world market demands has led to their gaining a leading edge in this industrial sector.

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The second category of industrial issues deals with repressive government regulatory policies and practices. The absence of meaningful or consistent tax incentives for training of the workforce, for investment in new plants, equipment, and process technology, as well as for investment in research and development are seen as inhibiting or reducing the capability of US industry to compete in the world marketplace. The problem is that the American tax system places a heavier tax burden on the country's own domestically-produced goods than is often applied to imported goods.

Similarly, there are several regulatory policies that put US industries at a disadvantage with foreign competition. For instance, US requirements for emissions, safety, environmental controls, and equal opportunity have imposed large non-productive costs. These costs are often made up at the expense of productivity improvements. Antitrust policies also place US firms at a competitive disadvantage. Pitted against foreign-led consortia, firms are often impeded from cooperative research and development by antitrust laws and regulations.¹¹ Additionally, there are overly restrictive export policies. I will discuss the impact of these later. The fact is, US government policies, many inherited from earlier days, are more concerned with domestic issues and have tended to ignore the entrance of foreign competition into the picture.

The third category of industrial concern relates to problems in the education system. There is a chronic shortage of students being generated by the US educational system in the science and engineering fields and in the vocational and technical trades to support advanced manufacturing needs. US competitors such as Germany and Japan all have high school graduates who appear to be much better educated in mathematics, science, and technology than their US counterparts.

The problems don't stop there, however. Basic reading and math skills are often lacking among those entering the

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US workforce, even among those with high school degrees. There is also a serious problem with basic social skills which are required to compete in the world marketplace. These encompass the ability to communicate in foreign languages, familiarity with foreign cultures and their practices, and a comprehensive understanding of foreign market systems including peculiarities of the foreign consumer.¹²

The fourth problem facing US industry is a comparatively aging defense industrial plant and the loss of key production technologies and equipment to foreign competitors. This problem has been most acute in the defense industrial sector because of a lack of capital investment. The reasons for this are many. Production of complex, high-quality, low-cost systems requires very modern automated manufacturing equipment. Low profit margins on defense contracts, a single customer base, the cyclical nature of defense procurement, and the lack of structural planning are among the disincentives which have impeded modernization.

In the broader industry spectrum, higher interest rates charged by US banks on capital investment, higher labor rates and benefits paid to American workers than is the case with Third World competitors, higher exchange rates on US currency, and a broad array of international investment opportunities for US financial institutions have impacted in negative ways on US industry.

In short, these factors have made foreign-sourcing more attractive. They have led to a migration of manufacturing facilities and capabilities out of the US. And they have resulted in the redirection of capital away from the industry.

In his book *The Defense Industry*, Jacques Gansler raises the contention that critical military technology, advanced manufacturing equipment, and expertise were sold off in frenzied competition taking place over the past two decades within the foreign arms market.¹³ In 1987, an arti-

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cle in *The Wall Street Journal* aptly points out the problem of the aging defense industrial base. One example it quoted was the highly complex F-14 aircraft which was produced by Grumman Corporation with plant equipment whose average age was 34 years and much of which dated back to WW II. The example illustrates the point that there is inadequate capital investment in new manufacturing equipment and technologies within the defense industrial sector. The connection is made to the lack of incentives.¹⁴

The problem of high interest rates is best typified by an example used by Bruce Merrifield, a consultant to the American Electronics Association, in an article published by *IEEE Spectrum*. His example concerned the loan of capital by Japanese investment banks to Toyota—the equivalent of \$8 billion at an interest rate of a mere 1.5 percent. He cites US interest rates for a comparable low-risk, longer-term investment loan after adjustment for inflation would clearly start in the 12-14 percent range.¹⁵ The gap in capital investment available to US industry is revealed by the following comparison: in Japan, where there are more vigorous incentives, the average capital investment per worker reportedly is about \$48,000; in contrast, the US average is about \$16,000, a third less.¹⁶

The fifth category of issues has to do with the lack of close cooperation between Congress, the government, and the defense industrial contractors. Some, such as the Deputy Secretary of Defense, Donald J. Atwood, have more poignantly described the relations as adversarial. They point to the decline in US industrial competitiveness as the resultant outcome.¹⁷ An MIT study of US industrial performance touches on this problem of cooperation in pointing out the need to build a better relationship between government and industry which will lower impediments to improvements in policy development and implementation.¹⁸

Many share the feeling that the Congress and the government are exercising too much control of defense equip-

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ment programs. From the contractor's perspective, the "presumption of wrongdoing" thinking is seen as being a prevalent factor in government-industry relations. Others feel that not enough attention is being given to legislative and regulatory measures which will restore US industrial competitiveness. There are complaints about mistrust, bureaucratic roadblocks, and the lack of consistent policies aimed at strengthening the technological and industrial base. Whatever the obstacles, the need to work more closely together is clear. The close cooperation between foreign competitors and their governments is increasingly being seen as one of their strengths over US industry.

A final category in the industrial realm has to do with "cultural" ills affecting Americans in the workplace. In the 1950s and 1960s, the "Protestant work ethic" prevailed. The American worker took much pride in and was well motivated to do his job. With his high standard of living, has he become indifferent? Has his job taken second place to outside interests which his standard of living now affords him? Taiwan and Hong Kong are two examples of countries whose strong economies are attributed in part to harder working industrial labor forces. And in Japan, the sense of camaraderie and team spirit among her industrial workers is often touted as one of the strengths underlying her success. Significant, too, are the problems of widespread drug abuse, crime and other social problems which are having a negative impact on productivity in the US.¹⁹

In summary then, we see from these broad generalizations that there are a number of domestic ills which are impacting on US industrial competitiveness. While none is insurmountable, they are hurdles which must be cleared. I believe that focusing on international cooperation will help in meeting these challenges.

Looking at the Challenge Ahead

Before concluding this section, a few words are in order about the single most challenging issue which will directly

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face the defense industrial sector in the days ahead. This has to do with future US fiscal policy and the looming steep decline in defense spending.

With a federal debt quickly approaching the \$3 trillion mark and 12 successive years of substantial budget deficits, the fiscal policy for belt-tightening in government expenditures, as originally enacted by the Gramm-Rudman-Hollings Amendment in 1985, is gaining more support. Defense spending, which saw sharp increases during the early Reagan Administration years, witnessed a turnaround in 1986 when a cycle of annual reductions was set in motion. The end of the Cold War and the dramatic events in Eastern Europe and the Soviet Union have since focused attention on more defense spending reductions as part of a so-called "peace dividend." Force reductions of 25 percent by 1995 have been set. Despite the current situation in the Middle East, many are now projecting further reductions by the end of the decade which could bring the military down to a level of less than half of its present size.²⁰

Thus, while industry at large is facing the harmful effects of this excessive debt, the defense industrial sector will be hit directly as well as indirectly. The resulting rationalization process and shakedown of the industry will leave in its wake a much smaller, more diversified defense industrial base. The majority of the surviving firms making up this base will be those which have succeeded in penetrating and holding onto their niches in the world marketplace.

COOPERATION IN DEFENSE TECHNOLOGY

In the previous section, I looked at the decline in the US industrial base. The erosion which is eating away at America's technological lead is caused by increasing foreign competition. Also, I surveyed a number of domestic ills which are having a negative impact on her ability to

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stay out in front of competitors in the world marketplace. I believe that the solution to this erosion and to many of these ills lies within the realm of successful cooperation with US allies in defense technology. In this section, I will focus on this aspect.

A Changing Industrial Environment

To begin, the question of what is meant by "international cooperation in defense technology" needs to be clarified. In the broadest sense, it implies not only government-to-government collaboration but also government-to-industry and industry-to-industry forms of cross-border business relationships. It encompasses everything from foreign military sales to purchases of defense goods and services from foreign suppliers to international ventures such as codevelopment and coproduction of defense equipment. Whatever the form, international cooperation in defense technology is taking on increasing strategic importance and is capturing the attention of government and corporate managers alike.

There has been a recent explosion in international cooperation in the defense industry as with most other industrial sectors and, with it, a number of patterns is emerging. The most notable change has been the tremendous growth of interdependence, which has blurred company and product nationalities to the point where they are now often truly indistinguishable. The world is replete with multinational corporations and global products such as the "world car." This proliferation of intercorporate alliances and global product sourcing is making it extremely difficult for countries like the US to formulate and implement economic programs which run along nationalistic lines. An example of this can be seen in the semiconductor industry. When efforts were taken to bolster US production competitiveness in this field, it was found that most of the industry's players consisted of a confusing array of mixed-nationality firms brought together largely as a result of

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corporate mergers or joint ventures. Even Sematech, which ultimately was provided with substantial research and development funding as part of these efforts, has several key consortium key members with close ties to foreign producers.²¹

A second change which has occurred deals with defense sales. US allies, who once were content with buying or simply co-producing defense products, are now seeking collaborative agreements which will enhance their own domestic technology bases. Foreign buyers are now looking for a complete package including the engineering and manufacturing technology and even "turn-key" factories along with the requisite training to establish their own production lines.²² And they are using the "buyer's market" as a bargaining vehicle to strike a better deal amidst foreign competitors.

The FSX agreement, signed in 1989 with Japan, involving a joint venture to co-develop and co-produce a new tactical fighter plane, is but one of many examples. Japanese interest in obtaining access to US technology and the rationale for providing it under the FSX agreement are highlighted in Congressional testimony given before the House Foreign Affairs Committee by the Secretary of Defense, Dick Cheney. In the testimony, he alluded to Japan's very real alternative of either going it alone or going to other foreign competitors if the US failed to give them access to the technology they desired. He summed up the deal as one that made good business sense as well as good strategic sense on the part of both parties.²³

A third change which has occurred is the over-capacity problem plaguing the defense industrial sector on a global scale. Just as defense spending has declined in the US, so too have the defense budgets of most other industrialized nations. Britain, France, and Germany are among those who are facing significant cuts. At the same time, there has been a general decline in arms transfers to the Third World. One study revealed that the value of sales in 1989 totalling

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\$29.3 billion was the lowest for any year since 1982 when sales peaked at \$61.4 billion. It attributed the tremendous Third World debt and leveling off of purchases following a spate of buying in the late 1970s as the reasons for this decline.²⁴ Whatever the reasons, this overall decline in defense spending and the over-capacity problems are leading to intense competition and rationalization of operations as companies fight for survival and jockey for a share of the remaining defense dollars.

Finally, we are seeing a dramatic increase in industry-to-industry or direct cooperation between US and foreign defense companies. In parallel with this, collaboration in defense technology at the government-to-government level is taking place at an unprecedented pace. The principal reasons for both occurrences are the same: economics. Companies are pursuing joint ventures and other forms of alliances as a means of restructuring to improve competitiveness, to create new products, and to keep abreast with rapidly changing technologies. Both companies and governments are pursuing international cooperation strategies as a means of cutting research and development costs and as a means of sharing the production rewards.

The dramatic rise in the use of collaborative agreements is shown in the results of a study conducted by INSEAD Business School in Fontainebleau, France. Using data taken from *The Economist* and *The Financial Times* over the period 1975 to 1986, the study revealed that such agreements had grown from almost zero in 1975 to about 300 or nearly one a day by 1986.²⁵

This explosion in the growth of international cooperation and the drive towards globalization of industry, however, is not being left unchallenged. There is a growing countervailing force pushing for trade protectionism. I'll examine these two trends in more detail.

Technoglobalism vs. Technonationalism

We have already seen how international cooperation is being driven by forces seeking access to cheaper and better technology as well as access to foreign markets. This trend is referred to by some as "technoglobalism." At the opposite end of this technology competition spectrum there are forces pushing towards protectionist government policies which are aimed at maintaining domestic technological competitiveness. This trend is referred to as "technonationalism."

Technoglobalism has three principal dimensions: global markets, global competition, and global companies. Technology is the common thread behind all three. It has prompted consumer demand for goods and services worldwide. This, in turn, has enticed firms to seek wider markets to recoup their research and development costs. It has also made it easier for firms to produce and market products globally.

Table 2 portrays various forms of technoglobalism which firms are pursuing as part of their corporate strategies. While international trade has been the more traditional form engaged in, there is an increasing trend towards more advanced and sometimes riskier forms such as joint ventures and cooperative agreements on research and development.²⁷

Technonationalism, on the other hand, can be viewed as a movement or force which is pushing for restrictions to be placed on the dissemination of technology so that the benefits flowing from its creation accrue to its producers.²⁸ It leans in favor of autarky and, out of concern for both security and statecraft, runs counter to the interdependence which international economic collaboration is seen as fostering.²⁹ Put another way, it represents the view that technology should be treated as a commercial and strategic asset which should be nurtured and kept at home. Any seepage of technology beyond national borders is seen as weakening competitiveness and security.³⁰

TABLE 2. FORMS OF TECHNOGLOBALISM²⁶

Type	Purpose
International Trade	To expand markets and increase returns on R&D investments
Foreign Investment	To increase access to markets and localize production
International Sub-contracting	To allow specialization in core components and increased flexibility
International Licensing	To broaden markets and to increase returns from R&D expenditures
Cross-Border Mergers and Acquisitions	To obtain technology synergies and localize production
International Joint Ventures	To increase market access and R&D economies of scale
International R&D Cooperation	To share high R&D costs and spread risks
Global Interfirm Agreements	All of the above

Technonationalism is generally favored by governments as they become more concerned about increasing technology gaps or threats from foreign competition to the viability of their own national industries. There are many vehicles by which it is conducted. Restrictions can be placed on foreign investment and on foreign ownership, control, or influence. Export and import controls can be imposed. Various investment strategies can be used to promote research and development or to assist industry with capital or marketing needs. In essence, technonationalism represents "managed trade" to enhance industry's ability to compete in international markets, and "protectionism" against foreign competition at home. Table 3 contains a cross-section of the more common technonational strategies which governments frequently employ.

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TABLE 3. FORMS OF TECHNONATIONALISM³¹

Type	Purpose
R&D Subsidies	Finance research and technology development in strategic sectors
Non-Tariff Barriers	Preserve scale of production and technology base through standards of public procurement
Gray-Area Measures	Protect technologically-lagging sectors from import competition through quota or price mechanisms
Trade-Related Investment Measures	Limit imports and promote exports through local content rules and export performance requirements
Anti-Dumping Measures	Limit imports and promote investment through allegations of predatory pricing or avoidance
Trade-Related Intellectual Property Rights Measures	Stimulate technology transfer through patent and copyright systems
Export Financing	Subsidize exports to expand markets and recoup R&D costs

Weighing the two, the trend toward technoglobalism appears to be the way of the future. It is a relatively new phenomenon, made possible by the advent of modern day international transportation, information, and communications systems. What has happened is that technologies, of themselves, are now providing the means for business to efficiently pursue and manage technoglobal interests. Meanwhile, the impetus is being fostered by the growing recognition that technoglobal strategies provide the best ways of increasing national productivity and gaining the competitive edge in the world marketplace. This trend is a natural outcome of a market-driven economy.

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The rise of technonationalism, in my opinion, is nothing more than a negative reaction to this new phenomenon. Its protectionist flavor leads to slower economic growth as firms become isolated from international competition and are blocked from exploiting their innovation on a multinational basis. I believe that technonational policies breed shortsightedness or short-termism which, rather than improving economic competitiveness, ironically end up weakening it in the long run. The US defense industry, where government protectionist measures have tended to be more broadly applied, is now suffering from the negative consequences of technonationalism. The US should not continue to put defense dollars into technonational strategies, when technoglobal ones will yield the best competitive edge in the long run.

Issues in Defense Technology Cooperation

International cooperation in defense technology, as part of the pull towards technoglobalism, is often a very contentious issue. We see numerous articles in local newspapers and periodicals which express concern that American security is being placed in jeopardy by foreign competition obtaining access to US defense technology. The concern over this technology transfer issue is two-fold. One view is that it allows foreign competition to infiltrate the US domestic market. The other is that it yields access to classified technology which could be used against US interests. The underlying appeal is for the government to intercede with increased protectionist measures. The following is an examination of the issues being raised most frequently.

The first issue is that of increasing US dependence on foreign-made defense equipment and spares. A basic tenet of US security policy in the past has been the assumption that the defense industrial base was self-sufficient. Today, this is no longer the case. Numerous studies have been conducted backing up this conclusion. One such study, involving sourcing for the Navy's Seasparrow missile, re-

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vealed that there were 16 foreign-produced high-technology parts obtained from several different countries used in its production.³² Another study concluded that the US defense industry is now heavily, if not totally, dependent on foreign sources for a whole range of electronics including computer memory chips, gallium-arsenide-based semiconductors, and the like, used in many of the US Army's high-technology weapon systems.³³

The sources are being tapped because of higher performance and lower cost or because the technologies are simply not available in the US. I view this situation as a reflection of the forces of technoglobalism at work.

While this creates a security concern over the availability of critical parts in a crisis, I believe that any serious attempt to counter this trend would be impractical. At best, we might be able to deal with it on a special case-by-case basis and, in general, do a bit of damage control by identifying where the vulnerabilities are. Anything more, and we begin to contradict basic US policy for an open market system. More realistically, requiring domestic production of items now being procured off-shore for incorporation into defense systems would be prohibitively expensive and would hit at a time when defense spending limitations demand thrift. Such action would also alienate US allies whose industries would stand to lose their part of the US market. In short, such a move would end up denying the US access to new and better technologies from abroad. And its isolationist underpinnings could well endanger US economic alliances, thus increasing, rather than diminishing, the security risk.

The second issue is that of technology transfer.³⁴ It is one which has been the subject of much debate in the US and has economic, moral, and security dimensions to it. The economic dimension relates to concerns that technology sales will enhance the competitive position of foreign industries at the long-term expense of US industry.

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The moral question has to do with foreign military sales and the image of "arms merchants" which such sales conjure in the minds of the American populace. The rise of high-technology conflicts in the Third World and, indeed, the 1991 war in the Persian Gulf are seen as the byproducts of these sales. It is because of this moral question that the US, despite the wishes of many in the defense industry, has exercised restraint in selling arms abroad. Others, however, even some of America's closest allies, have been less scrupulous.

The security dimension has to do with fears that, left unchecked, American technology will fall into the hands of her potential enemies, thus militarily or economically undermining her security. Throughout the Cold War era, most of this fear was generated by the Soviet threat. It was out of this concern that the US was prompted to adopt a comprehensive domestic policy for export control. As well, at the international level, the US and her allies established the Coordinating Committee on Multilateral Export Control (COCOM) for much the same reason.

The imposition of export controls, however, has not been an easy task. It requires the cooperation of allies and industries who sometimes view the world differently or have discordant motives. Then, there are many (especially dual-use) technologies which fall into the "gray area" category of whether their sale would or wouldn't compromise US interests. Add to this the problem of the "honest" versus "dishonest" broker. Finally, amidst the perception that the Soviet threat has subsided, pressures have mounted from industry in the US and in the COCOM-member countries for a relaxation of export controls to the Eastern European countries including the Soviet Union. Thus, commercial interests both at home and abroad are often being pitted against these broader national interests.

We see an example of this discord at the international level concerning an issue dealing with third-country re-export restrictions imposed by the US government on de-

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fense and dual-use products. Enforcement of these restrictions on third-country exports has frequently been problematic and has led to strained bilateral relations on several occasions with some of America's key allies. These same restrictions are creating difficulties for US industry at home. Foreign governments and their industries are purportedly turning to non-US sources for such products with increasing frequency so that they don't have to put up with the restrictions.³⁵

Several studies have looked into this issue and have come to the same conclusion. They have found the US technology transfer policy too restrictive and all have called for a relaxation of export controls to aid international defense sales and to make US industry more competitive.³⁶ One of these, a study by the National Academy of Sciences, estimated that US industry was losing as much as \$9 billion per year in sales due to these overly restrictive export controls. It noted that of this amount over two-thirds of the sales were going to "Western" countries anyway.³⁷

It is refreshing to note that the President, on 13 December 1990, approved a series of what will be sweeping export control initiatives. These included a package of procedural reforms to streamline and clarify export licence processing, while enhancing export control against the proliferation of missile technology and nuclear, chemical, and biological weapons.³⁸ Hopefully these initiatives won't turn out to be a case of "too little, too late."

The final issue to be discussed is the matter of foreign ownership. A rapid growth in foreign ownership of US assets has occurred in the past decade. This has led to fears that America may lose control over key sectors of her economy to outsiders. Some see this as compromising America's national security and identity. Others see it as posing a threat to her political and economic sovereignty.³⁹ Several opinion polls have shown these concerns as widespread and deep-seated.⁴⁰ A recent article in *The Washington Post* vividly shows the concern by its headline: "Who

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Will Build America's Nuclear Arms? The Sale of a Key Supplier Means It May Not Be Americans!"⁴¹

These concerns about growing foreign ownership and underlying calls for protectionist measures must be viewed, however, more as nationalistic emotion than as any real threat to national interests. Numerous studies have shown that foreign investment has directly added to the US productive capacity.⁴² As an example, one study revealed that in 1986 foreign-owned enterprises accounted for about eight percent of the total US expenditures on new plants and equipment.⁴³ Large inputs of foreign investment capital help to keep US interest rates lower. These, in turn, provide a stimulus for capital investment. If we fail to invest our savings, it's better to use those of other nations than to go without the investment dollars.

The presence of foreign-owned firms also tends to inject a higher quality of products into the US economy. This has created stronger incentives for domestic competitors to innovate and improve their own products. It also leads to an infusion of technology and production knowhow which enhances US competitiveness. Finally, the growing foreign investment manifests the increasing global economic interdependence of US industry. Through the new alliances created, US penetration of foreign markets is made easier.⁴⁴

Thus far, I have examined foreign dependency, technology transfer, and foreign ownership as the principal defense industry-related issues arising out of the shift towards technoglobalism. There is however a more macroeconomic issue. This has to do with international cooperation and debate over trade.

International Cooperation and the Trade Debate

The recent failure of the Uruguay Round of Talks, a series of negotiations on amendments to the General Agreement on Tariffs and Non-Tariff Trade (GATT) barriers, has put the balance of the global trading system into a precarious

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position. This failure stems from protectionist and managed-trade interests being given more weight by some GATT members over broader interests of "freer trade." Trade warfare could easily be unleashed if the relative equilibrium is interrupted. If this happens, the US economy, including the defense industrial sector, will be vulnerable.

US interest lies in having a world marketplace which is open and which operates on a level playing field (i.e., without subsidies or financial assistance). The danger to the US economy rests in the fact that it is the world's largest exporter of goods and services. A spate of protectionist measures aimed at shutting out US industry by her trading partners could push the US deeper into recession. This would come at a time when a de-valued US dollar should be making US goods more competitive on world markets.

It is useful to consider in macroeconomic terms what the stakes are. These can be seen by looking at what gains can be made from reducing trade tariff and non-tariff barriers. Since its inception in 1947, the GATT has paved the way to tariff cuts of roughly 35 percent. This tariff liberalization in turn has been partly responsible for spurring the rapid growth in world trade over the same period.⁴⁵

The magnitude of the gains to be made is shown in Table 4. These figures are based on a study by Australia's Centre for International Economics. The study projected a modest economic gain by the North American, European Community, and Far East Regions of just under \$100 billion per year out of the now deferred conclusion of the Uruguay Round. It further projected, as shown by Table 4, the impact on the three regions if tariff and non-tariff barriers were reduced by 50 percent. The total gain of the three regions in this case was projected at close to \$750 billion per year.⁴⁶

While it is uncertain how or when the current impasse will be resolved, one thing which is certain is that there is a lot riding on the outcome for American industry. There is a

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TABLE 4. GAINS FROM FREER TRADE (INCREASES IN GDP, 1988 \$BN)

Region	GATT Uruguay Round	Liberalization (50% Reduction)			
		N. Am.	EurCom.	Far East	Total
N. Am.	34	93	31	84	208
EurCom.	35	94	117	34	245
Far East	36	54	9	224	287
Total:	95	241	157	342	740

Source: Centre for International Economics

lot of diplomatic shuffling taking place aimed at getting a resumption of the GATT talks. Assuming this succeeds, it will be interesting to look for the ultimate outcome.

Cooperation Among the NATO Allies

I'd now like to narrow the focus and briefly examine the challenges facing defense cooperation between the US and her NATO allies.

One of the principal successes of NATO as an alliance has been the cooperative development and production of sophisticated weapon systems needed as a deterrent against the threat posed by the Warsaw Pact. The sharing of defense technology and increased market access engendered by collaboration among the Alliance members have substantially strengthened their individual defense and civil industrial bases. But, with the easing of East-West tension, will this economic cohesion within the Alliance weaken?

In my opinion, the glue will continue to hold. Yes, defense priorities are being re-assessed, but I believe that armaments cooperation within NATO has become a way of doing business for the governments and industries concerned. Fiscal realities of declining defense budgets will strengthen commitments to collaborate in arms production. For anyone wanting to remain in the business, collaboration will be required to counter the rising research, devel-

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opment, and production costs associated with state-of-the-art weapons systems.

Related to the question of future NATO defense industrial collaboration is the uncertainty over the impact of the emerging European economic pillar. There are two parts to this which need to be considered. The first deals with the Independent European Programme Group (IEPG) and the second is the broader aspect of the European Community (EC) 1992. These initiatives could lead to protectionism against outside and, more specifically, US competition.

The IEPG was founded in 1976 as a European non-NATO forum to discuss defense industry-related issues.⁴⁷ Among its more recent aims are: the promotion of a stronger European collaborative research and development effort, the establishment of an open and competitive European market for defense equipment, and the adoption of the principle of "juste retour," or fair return on cross-border defense trade.⁴⁸ The EC 92, on the other hand, will be geared toward abolishing all internal duties and tariffs as well as non-tariff barriers to trade. While defense trade has been specifically excluded, the blurred distinction between this sector and the commercial sector means that there will be some spillover. One could easily conclude that the IEPG initiatives pick up where EC 92 drops off.

Many in the US view the IEPG initiatives and EC 92 together as moves toward "fortress Europa" and "buy European" policies.⁴⁹ They see these moves as a way of counteracting US encroachment or domination of the European market. A more open view is that they will enhance two-way trade overall. The US will have to penetrate only one market as opposed to several and will not have to deal with the plethora of different trade regulations which it now encounters. Conversely, the IEPG members will be able to compete on a more solid footing both at home and abroad. I believe the latter view to be the more accurate assessment of the outcome.

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In retrospect, parallels can be drawn between the EC 92 and the IEPG initiatives with similar Canada-US bilateral agreements. The first parallel is the Canada-US Free Trade Agreement which went into effect on 1 January 1989.⁵⁰ Along with ongoing talks to bring Mexico into a free trade agreement encompassing all of North America, the agreement is not unlike the goals being set out for EC 92. The second parallel relates to defense industrial cooperation. The Canada-US Development and Defense Production Sharing Arrangements (DD/DPSA) in place now for some 30 years and embracing a series of cooperative and reciprocal defense trade agreements, are not unlike some of the objectives of the IEPG. Further, it is worth noting that this long history of defense industrial cooperation culminated on 23 March 1987 in the creation of a formal North American Defense Industrial Base Organization (NADIBO).⁵¹ This move reveals the close integration of the two defense industrial bases. The IEPG aspirations are very similar.

The Secretary of Defense, Dick Cheney, suggested at the 1990 spring meeting of NATO defense ministers in Brussels that there was a need to design policies and programs which would build and strengthen "this industrial base of the Alliance as a whole."⁵² More recently, in an article in *NATO's Sixteen Nations*, he makes the following points:

- Economic factors such as shrinking defense budgets make cooperation in defense research, development, and production more imperative than ever.
- There is a need to resist the growing trend toward protectionism as spending declines.
- Cooperative efforts are becoming more institutionalized and these need to become even more so in the future.
- The various NATO organizations such as the Conference of National Armaments Directors, the Senior NATO Logisticians Conference, and the NATO Standardi-

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zation Group provide a useful structure for Alliance cooperation.

- Initiatives like the so-called "Nunn programs" stemming from the 1985 Nunn-Roth-Warner Congressional Amendment facilitating the funding of cooperative research and development were beneficial.⁵³

In closing, it is worthy to note that there is some support within the Alliance for a NATO version of the GATT. The aim would be to remove, for Alliance members, barriers against defense trade not addressed by the present GATT and to promote further cooperation among them in this sector. The matter is now under consideration by NATO.⁵⁴

RECOMMENDATIONS AND CONCLUSION

It is doubtful that the US will ever regain the clearly pre-eminent technological edge over foreign competition on which her defense industrial base, in the past, was able to flourish. But the erosion occurring to the defense industrial base can be checked and a turnaround in its competitiveness posture can be achieved. The environment in which the US defense industrial base must compete is changing into one which is increasingly more globally interdependent. In my view, the US defense industrial base has not kept pace with this shift. To survive and once more flourish, I believe that it must adopt strategies which flow with and not against the trend towards a global economy.

Meeting the Competitive Challenge

What then do I recommend? My basic thesis is that international cooperation is the principal key. As such, I lean heavily in favor of adopting strategies that fall within the technoglobalist camp:

- Foremost, in keeping with the strategy of increasing international trade, the US should continue efforts aimed at

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achieving agreement on more liberalized trade, including the freer trade of defense goods, among nations.

- Secondly, the US should adopt policies which encourage rather than restrict cross-border defense industry collaboration.

- Finally, efforts should continue to be devoted toward achieving international consensus on issues like standards, intellectual property rights, and technology transfer controls which impede collaboration today.

Together, these initiatives would allow the US defense industry access to better technology at cheaper cost and allow it to compete more effectively in the international marketplace.

Conversely, I believe that the appeals for protectionist and managed-trade measures embraced by technonationalism should be resisted in all but critical defense technologies.⁵⁵ If these types of appeals meet with success, US defense industries will find their products being increasingly shut out of foreign markets. Coupled with this will be a continuing encroachment by overseas industries as the US ones become less competitive.

Because of limitations on the scope of my paper, there are a number of recommendations pertaining to domestic issues with which I have not dealt. These cover such areas as infrastructure, education, banking, and fiscal policy initiatives which are required to make the US defense industrial base more sound. While there is a broad range of possible initiatives, one caution: we must ensure that we are maintaining a level playing field of our own.

The future for America's competitiveness in the defense industry lies in a strategy of promoting international cooperation. Without this, our technological edge will only continue its decline.

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